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PETROLEUM.

LEO LESQUEREAUX ON THE OIL BEARING ROCKS OF OHIO.

Leo Lesquereaux, Grologist, of Columbus, Ohio, in a pamphlet containing his "Report on a Geological Survey of the Lands of the Columbus National Petroleum Company, in Hocking and Vinton counties," in that State, says;

GENERAL REMARKS ON THE ORIGIN OF PETROLEUM.

"All authors," says Prof. Silliman, "who have examined the question of the origin and of the distribution of petroleum, agree substantially in stating that the transformation of organic matter, chiefly vegetable, imbedded in various strata of the earth, results in the production of rock oil or petroleum, naptha, asphaltum or mineral pitch, all of which are forms of bitumen, the one being solid, the others fluid at ordinary temperatures"* Coal should have been included in the above enumeration of bituminous substances produced by the transformation of vegetable matter, for indeed the relation of coal to petroleum is so well ascertained that naturalists of high standing contend that, at a certain temperature, cannel coal is slowly transformed into petroleum, and that the deposits of oil in the coal measures have been produced from the slow decomposition of some coral strata. This assertion, though perhaps not satisfactorily proved, is strengthened by these facts: 1st. That petroleum is generally found in connection with coal beds, even in coal measures of different geographical epochs, as the oil deposits of California within the coal formations of the tertiary. 2d. That in our own coal measures we find sometimes oil deposits at the base of beds of cannel coal, or within the porous sandstone underlying those beds or their place. It is the case in the oil regions of the Muskingum, in Ohio, of the Kanawha, in Virginia, of the Big Sandy and some of its affluents in eastern Kentucky, as well as in Breckinridge county, near the Ohio river, in the western coal fields of the same State. In those places, petroleum is often seen saturating the rocks of the Millstone grit, or percolating from them, either making pools of oil at their bases, or appearing with the water of the springs which pass through this formation or gush out at its base. Petroleum has been gathered for ages and in some quantity from these natural oil springs.

Contrary to this opinion, some geologists assert that petroleum cannot have originated within our coal measures and from the decomposition of coal beds, and that the rocks of this formation have been impregnated with oil forced up by the expansion of the gas which constantly originates from this substance. As we know that petroleum is found with the coal of different formations—tertiary, cretaceous, etc.—it is evident that this opinion cannot be sustained.

The difference between coal and petroleum is most probably the result of a difference in the nature and substance of the plants which have entered into their composition. Plants above water, or terrestrial plants, fix the carbonic acid of the air and water which they absorb, and transform it into carbon or woody matter;—they make wood. By a slow process of decomposition, the wood changed into coal. Plants living in either fresh or salt water are merely cellular, have no woody fibre in their tissue, and, by the same slow process of decomposition, they produce bitumen in its different forms—petroleum, asphaltum, etc. Hence we see that oil-producing rocks generally contain remains of sea weeds or Fucoides, while the shales and sandstones overlaying coal beds bear remains of ferns, of trees of various forms and species. There is in the coal measures a peculiar plant named Stigmaria, whose remains are seen in immense quantity in the fire clay at the bottom of the coal beds, and also within the so-called cannel coal. These plants were floating plants; mixed with some other species, they have entered mostly into the composition of cannel coal, and wherein they have lived by themselves, without being mixed with mud and silica to constitute clay, or with other plants to make coal, they have given origin to the oil deposits of the true coal-measures. This supposition explains satisfactorily the relation of cannel coal to rock oil, and its slow transformation into petroleum, under certain circumstances. For, sometimes, as is the case at Breckinridge, in Kentucky, cannel coal is a mere compact bitumen, mixed with some fixed carbon, and scarcely distinguishable from asphaltum. On the other hand, the Devonian black shales are sometimes so compact and charged with bitumen that they burn like coal, leaving, nevertheless a great portion of residue, which does not consume and is pure shale. In the first case we have a compound of bitumen and a small proportion of woody matter; in the second, a compound of bitumen and a large proportion of earthy matter or wood.

GEOLOGICAL DISTRIBUTION OF THE DEVONIAN OIL-BEARING ROCKS IN NORTH AMERICA.

Though much has been written, and is still published every day, on the question of the distribution of petroleum, we know little indeed concerning the relation of our oil deposits with those of Pennsylvania, and this question, "Do we have a true Devonian petroleum region in Ohio?" is still unanswered. Till now, all the oil obtained in our State, as well as in north Virginia and East Kentucky, is from the true coal-measures, or from their base, the Millstone grit. The deposits of thick lubricating oil of this formation have been found valuable and remunerative at some places. But we want something more, and it would be of great importance for us to know if the bituminous black shales, the so-called Devonian of Worthington black shales, well developed in Ohio, all along and near the borders of our coal basins, from Lake Erie to the Ohio river, are true originators and receivers of petroleum. Do they promise, in some peculiar localities, to reward labor and cost of boring by such a flow of oil as has enriched the famous Venango county of Pennsylvania or the Chatham fields of Canada?

Some few borings have been begun, and many wells already placed in the belt of country which I consider as the Devonian oil regions of Ohio, but we cannot know yet by results what their productiveness may be. It is then only by geological test, or by comparison of our Devonian measures with the oil bearing rocks of Pennsylvania, that we can appreciate the chances of future development of the petroleum business in our State. To render this comparison comprehensive, it is best to admit the description and names of strata as they are given by the State geologist of New York; for it is from their works that we have obtained most of our knowledge of the Devonian formation of this country.

Under what is generally called the Devonian black shales, we have first a limestone of great thickness, which is a part of the Corniferous formation. It is as well developed in Ohio as in Pennsylvania, but not quite so thick, perhaps, as in Canada. Our quarries of Columbus expose this limestone, with its peculiar fossil fishes and shells, its irregular masses of siliceous porous rocks, its surface caverns, filled there with fragments of Limestone and peroxyd of iron. Over this limestone there is, in Pennsylvania and New York, the Hamilton formation consisting, 1st, of a lower member of generally black, very bituminous shales (Marcellus shales,) containing remains of some large trees, and sometimes traces of coal; 2d, of a middle member, the Hamilton beds, a compound of shales of various kinds, flagstones, even a thin bed of limestone; and 3d, of a third member, the Genessee shales, also generally black and bituminous. According to measurements of the New York State geologists, the Marcellus shales are rarely more than 50 feet thick, at least near Lake Erie, the Hamilton beds, in the same country, are 500 feet thick, and the Genessee shales only 25 feet. Our black shales of Ohio are characterized by remains of large trees, traces of coal, and the great amount of bitumen which they contain. They moreover, overlie immediately the Corniferous limestone, and appear as the representative of the Marcellus shales, and certainly also of a part of the Hamilton beds, and probably of the Genessee shales. Their thickness in Hocking and Vinton counties is from 250 to 330 feet. Thus we have in Ohio, say 300 feet of measures representing the 575 feet of the Hamilton formation as it is along Lake Erie, and probably also in the Pennsylvania oil regions, and marked by the same essential characters. It is from the formation under these black shales, or from the Corniferous measures, that the oil is obtained in Canada, and from the formation above, or from the base of the Chemung that Oil Creek, Venango county, Pa., derives its wells of petroleum.

This Chemung formation of the New York geologists is composed of a lower part, the Portage group and an upper one, the Chemung proper. It is of great thickness in Pennsylvania and New York. In the Venango oil fields, from data obtained by borings, it appears to be from 1,000 to 1,200 feet. Prof. James D. Dana, in his Manual of Geology, speaking of this formation says: "Westward of New York, the Portage and Chemung groups have been supposed to be represented in Ohio by a sandstone called the Waverly sandstone, three to four hundred feet in thickness. Many facts, however, point rather to the conclusion that the larger portion at least of this series really belongs to the subcarboniferous, or is at any rate newer than the Chemung." From what I know of the Knob sandstone of Kentucky, which is the equivalent of our Waverly sandstone, I was already in doubt concerning the value of this assertion. But recently, in following and studying this formation from its base at Circleville, Pickaway county, where it is seen overlaying immediately the black shales, to its top, near the base of the Millstone

*Letter to Hon. Mr. Harris, 8th April, 1865, in United States Railroad and Mining Register of Philadelphia.

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grit at Rockhouse, Hocking county, I have found its characters so fully agreeing with those marked for the Chemung, that I do not doubt now of the identity of this formation of ours with that of New York. "It abounds in ripple marks, obliquely laminated layers, mud marks and cracks from sun drying. It has, as the Portage group, great numbers of Fucoides, or forms regarded as fucoidad; the most common kind appears like short, straight, simple stems, two or three inches long, scattered thickly over the surface of the sandstones. In the upper Portage, there are other cylindrical forms penetrating vertically the layers, but these are probably the fillings of worm holes." This description is copied from the same Manual of Geology of Prof. Dana, and is a perfect resume of the characters of this group, as indicated by the New York geologists. At the same time it agrees so well with the characters of our Waverly sandstone, especially in Hocking county, that it would seem as if it had been made from its examination. At the base of the formation, half a mile east of Circleville, we find already those peculir marine plants, ripple marks, etc., and see them all along the road for about ten miles to the mouth of Laurel creek, where a bed of shales, flagstones, carbonate of iron, blue clay etc., is exposed, seventy-five feet thick, and where the shales and shaly sandstones are most entirely covered with the same species of Fucoides. It is well to remark that the distribution of these marine plants occupy a very large vertical space, and that they might be found in the subcarboniferous, perhaps. For I have been misled by their appearance, even at the base of the true coal measures. But the subcarboniferous strata are of quite a different nature. And how are we to compare measures or formations at great distance, or when they appear only at wide intervals, if we have to put aside as unreliable what is generally conceded as satisfactory characters to authorize the admission of identity. We have here the same lithological appearance in the nature of the stone and the strata. In Ohio, as in Pennsylvania, a soft sandstone of a peculiar buff color, alternating with shales of various kinds, flags, ironstones, blue clay, etc., the same geological distribution; for in Pennsylvania they have over what they call the Chemung, 20 to 30 feet of sub-carboniferous measures, a peculiar kind of black soft shales containing oval pebbles of carbonate of iron, separated from the base of the Millstone grit by 5 to 6 feet of clay iron ore or ball ore, and under or within these shales, sometimes a thin bed of coal. It is precisely what we can see at the base of the Millstone grit, below Rockhouse, and this agrees perfectly well also with some parts of the measures of the eastern Kentucky coal fields, where the subcarboniferous limestone has not yet made its appearance. I quote a few passages from my Kentucky geological report. "Three miles south of James Wells', near the eastern limits of Montgomery county, a bed of coal 22 inches thick rests immediately upon a soft bluff colored sandstone, containing in great abundance shells of the Chemung group, which at this place overlies another bed of sandstone, covered mostly with Fucoides Cauda-galli."* And further, in the hills just opposite the house of M. S. Wells, the formation containing Fucoides Cauda-galli, about 100 feet thick, rests upon the lower subdivision of the Chemung group, and is overlaid by a conglomerate sandstone, etc. In these hills there is no trace of coal or of limestone, (subcarboniferous); but on the road to McCormick, in crossing the hills between Slate and Beaver creeks, the limestone makes its appearance, with a strain of coal above it." This limestone, the real subcarboniferous formation, or its essential part, is absent in Hocking and Vinton counties, and also in Pennsylvania. But southward, among the coal measures of Kentucky, it appears and always separates the coal measures from the Chemung. When it becomes thicker and is in two or three different strata, as under the coal formations of Western Kentucky, Indiana and Illinois, its strata are separated by shales of a peculiar nature, where till now no traces of Fucoides have been seen, and by sandstone beds which contain remains of large land plants, Lepidodendron, Calamities, etc., species which characterise the true coal measures. Why, then, and on what ground, should we separate those formations of Ohio, agreeing in position, in nature and composition of strata, in fossil remains also, with those of Pennsylvania, at Oil Creek, to give them another name, and regard them as of different age. I consider their identity as fully established though there is a difference in thickness. In the oil regions of Pennsylvania they have, as already stated, 1,000 to 1,200 feet, or perhaps more; in Hocking county, Ohio, about 600 feet.

I may err in supposing that, for Ohio and for Pennsylvania also, the black shales of the Devonian, either the whole of the Hamilton formation or only a part of it, are the essential generators of Devonian petroleum. Some geologists admit that the Chemung of Venango county contains, at different horizons, sandstone beds separated by oil-bearing shales, and if it is the case, our six hundred feet of Chemung measures may contain also one or more horizons of oil. Nothing but actual experiment can determine this;* but certain it is that the black shales of Ohio are generally so much charged with bitumen that they burn sometimes like coal, or have been quarried for distillation of oil in retorts. Many springs, coming out of them, bring oil with their water. Wherever, then, these shales have been and are still overlaid by strata of the Chemung, in sufficient thickness to have prevented the dispersion of bitumen through the surface, either by gas or by springs, this bitumen, to my belief, is concentrated in more or less great abundance, either in the porous sandstone and their cavities above the shales, or in the caverns of the limestone below it, as in Canada. The little we know from experience of that oil region of Ohio seems to confirm this opinion. The sandstone near the base of the Chemung has its surface sometimes blackened by a coat of condensated or oxydated petroleum or asphaltum, and in the quarries also in the same position, one sees often traces of oil brought up with water through the sandstone. One well bored in Hocking county, opening at one hundred and twenty feet lower than the base of the Millstone grit, has reached a fine show of oil at one hundred and thirty feet, and in East Kentucky, where the Devonian black shales have the same thickness as ours, a well bored in Estill county, passed fifteen feet soil, one hundred feet black shales, one hundred feet light clay limestone, one hundred and ninety feet gray limestone, when the auger dropped, salt water gushed out and soon gave way to the present continuous flow of oil.†

Borings begun just above or within the black shales or too near their surface from the base of the Chemung, may have been unproductive. I know of but one in Pike county, Ohio; but this unproductiveness is mostly due, as said before, to dispersion of petroleum through the surface. From the base of the Millstone-grit, at and around Rockhouse, Hocking county, a number of small, pretty deep valleys, shedding their waters to Salt creek, descend by soft slopes from two to three hundred feet below the base of the Conglomerate. It is this part which I have especially examined, which presents great likeness of topographical and geographical configuration with Oil Creek, and which is likely to become one of the richest oil fields of Ohio.

After a description of the lands belonging to the company, Mr. L. says:

"In conclusion of this report, I beg to be allowed to make a remark more, as an excuse of its length. My influence, if I had any, would never be cast against investment for the investigation of the oil regions of Ohio, which, when developed, will enrich our State in the same manner as the development and product of petroleum has people and enriched some counties in Pennsylvania. But being acquainted, as is every geologists, with the nature of our oil-bearing measures, I had not a favorable idea of their value. It was then agreed that if this opinion should be confirmed by an examination of the land, I should not be called to make any report. Of all the States of America, Ohio is the only one whose geology has been most neglected, and is still a true *terra incognita*. To this ignorance, the general indifference toward our mineral deposits of Ohio is certainly attributable. My views having been totally modified by the exploration made of the part of the country referred to in this report, I had, of course, to explain the cause of this change of opinion, and it was not possible to do it without the scientific considerations by which it was forced upon me."

* This plant is considered as characteristic of the lower corniferous formation, but ascends much higher. At A. M. Wells' the black shales are about 500 feet lower than the sandstone with Fucoidei.

*J. P. Lesly, Proceedings American Philosophical Society.

†Kentucky Geological Report.

MINING.

THE RICHES OF MONTANA.

The following very interesting letters, from the pen of Chief Justice H. L. Hosmer, were addressed to Sidney Kopman, Esq., of the firm of Thorn, Staple & Kopman, No. 180 Broadway, and are so rich in information respecting the Gold and Silver properties in that Eldorado of the precious metals, that we have prevailed on Mr. Kopman to allow their publication. The source of these letters is known to be perfectly reliable, and they may therefore serve as a guide to all who desire to know the mineral wealth of Montana. They were not wriiten for publication, and have none of the glare that continually beset newspaper correspondence.

VIRGINIA CITY, Montana Territory, Oct. 23, 1864.
SIDNEY KOPMAN, Esq.;

My dear Sir—I made several ineffectual efforts to have a parting interview with you, and to call with you upon the gentleman to whom you desired to introduce me, before I left last August—I regret very much that I did not succeed, as I understood from you that that gentleman was interested in knowing something of the mineral resources of this territory, and would probably, if satisfied of their reliability, furnish capital to aid in their development.

I have been here about a fortnight—my position has made me acquainted with many people from different parts of the territory, and I have already visited those parts of it which have been worked by the mining population. I do most positively assure you that we have the richest mineral region in gold and silver in the world. As yet the labors of miners have been principally confined to two rich gulches, one at this city, and the other at Bannack City, 65 miles distant. Many rich gulches have been prospected in the territory, but they furnish a very small portion of its wealth. During the season just closed, there have been discovered in every part of this great territory a very great number of gold and silver lodes—greater in number and vastly richer in quality, than anything found in Colorado, California or Washoe. Silver ore taken from some of these lodes has been assayed, which yields 5000 ounces to the ton. The world has never before equalled that. The best lode in the Washoe mines, in Nevada, affords less than 3000 ounces. Gold quartz proportionably rich in quality, is daily being discovered in immense lodes all over the territory. Three little quartz mills of twelve stamps each, have been erected during the past summer at Bannack City, and they are now crushing out of the quartz furnished from one lode in that vicinity, from $300 to $500 each of virgin gold. No means at all have yet been employed to develope the silver lodes, which, of the two, on account of their superior richness, can be much more profitably worked than the gold.

I wish to give you nothing but facts, because through your assistance I hope, early next season, to get a company organised which will send a quartz mill for the development of gold lodes, and the proper machinery for working silver ore, into the territory. I am satisfied from the great number of persons engaged in speculating in *claims* upon quartz lodes, as well as from the great number of claims already in the market, and

which will be discovered and put on the market next Spring, that the only sure and speedy way to make money out of these discoveries is to set up mills and go to working them out on shares. A company organised for this purpose, with a ready capttal of $100,000 to invest in quartz mills and silver machines, can clear for its members, say ten in number, at least $100,000 a piece during the next season, and possibly $1000,000. You will think me over sanguine, but those who know me will bear witness that I have never been a very hopeful man. And now that you may become fully informed as to the prospective wealth of the territory in silver and gold, I will refer you to Prof. A. K. Eaton of Brooklyn, formerly connected with some learned Institution in Brooklyn, and a very competent chemist. He leaves this country for New York in about a fortnight, and will spend the winter in Brooklyn. It may be six weeks before his arrival. I would give him a letter to you, but do not expect to see him again prior to his departure. Don't fail to see and talk with the Professor. He has assayed all the rich lodes in the territory, discovered the silver ore himself, and will return here in the Spring with means to develope many of these lodes. My opinion of him is, that he knows a great deal more than he means to tell of the wealth of this territory, as he is very reticent, and it will require the exercise of a good deal of yankee ingenuity to draw him out. He, in company with some others, has laid out a town in the vicinity of a mountain, which he has named Silver Mountain, a survey of which he exhibited to me, and which contains more than twenty rich silver lodes. You can satisfy yourself by conversation with him, of the truth of what I tell you.

Now, friend Kopman, there is a fortune for any number of men who wish to work for it, and will furnish the means to do so, in these Montana mountains, and "time, patience and perseverance," those three Masonic virtues, will make the fortune just as large as the aforesaid good fellows may require. I want one chance in such an enterprise, and propose to give for it my time and such influence as my position in this territory will enable me honestly to exercise. I know that I can get hold of some of the richest lodes of both the silver and gold in the territory, if I can command the means to develope them Two or three gold lodes in Colorado neither of which are equal to lodes that I can control in this territory, have made a company of men worth several millions each during the past two years. The same thing can be done here. I want you to think of it, and set your wits to work at once to get up a company and forward at the earliest practicable moment next Spring, all the needful machinery for a grand demonstration upon a large scale. A gold mill with twenty or forty stamps, and silver machinery on a plan equally extensive, will be the most speedy means of realizing our objects.

As yet no combinations have been formed for developing the gold lodes of this territory, but you may be certain there will be some heavy ones formed this winter. Several persons who have spent the summer in prospecting for lodes have already started for the East with specimens of ore, determined not to return without sufficient capital to commence the great work of development. By being among the first, we can make the most money. There ought to be hundreds of men of your acquaintance to jump at the opportunity which this country affords for speedy fortunes—and I know of no man so competent as yourself to enlist them in the enterprise. All your agencies—and Government speculations, and Eastern gold mines, are the merest dross when compared with the rich mountains and gulches of Montana. Half the energy that you have expended in pursuing these phantoms, devoted to Montana mines will give you and me all the money we shall need to spend agreeably the remainder of our lives.

I like this country very much. It is beautiful in its scenery, healthy in its climate, and hospitable in its people. The city—a barren, naked hill-side fourteen months ago, now contains an active population of 6000 and all the elements of a great city, in greater proportion than any other spot on this continent. There are four other mining towns within a radius of seven miles from this, that contain a population of 8000 more. The people are sharp, intelligent, free-hearted, and on the whole, I need nothing but the presence of a few congenial friends to make my residence quite as agreeable as the one I left. You are perhaps aware that I married at Philadelphia on the eve of leaving the States. Well I am keeping house in a little log cabin, 12 x 15, with a mud roof, and my young wife cooking my Sunday dinner, while I am writing to you. Our meats are far ahead of anything the New York market affords.—We get, in profusion, Elk, Moose, Mountain Sheep, Antelope, Black and White tailed Deer, Bear, almost every variety of wild water and land fowl, and the finest Speckled Trout you ever saw. Our beef and mutton, fed upon the rich mountain grapes, are of very superior flavor, and the vegetables raised by irrigation in our valleys are finer than any I ever saw in the States.

Let me hear from you soon, as I must keep writing to Eastern friends until I can interest some one in the enterprise I have suggested. Direct to Virginia City, Montana Territory, as this will be my permanent headquarters.

Truly your friend,

HY. L. HOSMER.

VIRGINIA CITY, Montana, Jan. 14, 1865.

SIDNEY KOPMAN, Esq.;

My dear Sir—Mr. H's letter and your several letters, including the last of Dec. 10th, which was received to-day, are all before mé. I thank you for them and take pleasure in replying to the several inquiries made by Mr. H.

Our titles here are all pre-emption. Government owns the fee of the land, and will confirm titles in pre-emptors, or their assigns, when she passes a law upon the subject. Of course titles thus obtained are unquestionable, unless Government should make some disposition of the property out of its ordinary course. Whatever property we obtain in quartz claims, is held by as good a title as if it were in fee.

Our gold quartz and silver crevices vary in width from 18 inches to 10 feet. The silver crevices are generally the widest.

Towns can be laid out and built in the vicinity of quartz claims, but the speculation in the claims is deemed so much more lucrative than speculation in towns, that thus far in our history they have been laid out and built up simply as conveniences. This will not always be the case.

Streams affording water sufficient for steam purposes are found in the vicinity of all the mineral districts, and in many of them they have fall sufficient for water power, but this is not reliable in the Winter, and as wood can generally be had in abundance for steam purposes, water power is not much sought after.

All our mineral districts attest to the action of heat at some time. The gold and silver quartz is igneous in character, and much of it is burnt to a light pumice. The mineral is found both in the burnt rock and in very heavy compact rock, in which, frequently, lead or copper predominates. Copper, for instance, predominates in the silver lodes of Deer Lodge, while in those of Rattlesnake and Prickly Pear, galena is the principal mineral. Gold rock is frequently filled with iron pyrites, but in some of the richest leads the gold is found in the burnt rock. The wall rock of the crevices is generally granite or trap, and sometimes almost hornblende.

Our territory is about 700 miles in length from East to West, and 500 from North to South. It is well watered by the Missouri, the Yellowstone, and their numerous tributaries. It contains several very extensive valleys, which by irrigation, can be made more productive than any equal quantity of land in the States. Of this character especially, the Yellowstone, the Gallatin, the Deer Lodge and the Bitter Root.

I could send you any quantity of rich specimens from all the mineral localities yet discovered, but for the interruption occasioned by the depth of snow on the Rocky Mountain divide between this city and Great Salt Lake. I do not believe now that I shall be able to do so until Spring, unless some private opportunity offers. There is no Express now running, and the mails are packed over the range by jackasses.

I enclose you a copy of our mining law which passed our Legislature two weeks ago.

The opportunities for making good purchases are so numerous, that I cannot specify particularly. Prospectors will sell to get money to keep themselves from starving, the very richest lodes in the territory, at the lowest rates. I shall be able to send you some rough drafts of the mining localities in a week or two.

Labor is high, $5 per day, and the cost of living enormous, for everything but meats, which are abundant, of superior quality, and very reasonable. Plenty of laborers can be had, and also prospectors.

Houses are built of logs, and cost from $100 to $500 according to size. A comfortable cabin 15 x 15 can be built for $100.

Quartz mills and crushing machines must be transported from the States. The best route to send them next Spring will be by the Missouri River to Fort Benton, and thence by teams to their places of destination. Transportation is expensive, but returns are speedy.

Lots in this place, 25 x 100, with comfortable cabins on them, can be bought for from $300 to $1500, according to location.

Salt Lake City, 4,50 miles distant, is the nearest telegraph station. They send dispatches from there here by the weekly mail.

* * * * * * * *

I think this answers, briefly, all the interrogatories. And now let me add that I have not a doubt that we have here the richest territory on the continent. We have hardly begun, as yet, to discover its resources.—Lodes are discovered daily, and all of them are richer than the lodes of Colorado, which command in your city the most extraordinary prices. I want money to operate with, and I can buy between this and the period when immigration begins to flow in next Spring, gold and silver property enough to enrich half the city of New York. There is but little money here, and abundance of gold property—and now is the time to buy. If you can induce some of your capitalists to entrust me with funds, I will give a good account of my stewardship from time to time, and pave the way for giving to all concerned, all the fortune each shall need, unless gold and silver property becomes a drug.

Let me hear from you soon; in the meantime believe me, Very truly yours,

HY. L. HOSMER.

THE SILVER MINES OF NEVADA.

INTERESTING ACCOUNT OF A TRIP THROUGH THE SHAFTS.

The Virginia City (Nevada) Journal gives the following description of the silver mines near that place, and the underground villages and steam-engines, railroad cars, and other appliances of underground life:—

Descending at the Choller Works by a perpendicular shaft, over 400 ft. in depth, one may wander off in almost any direction. By two or three different roads we might travel eastward nearly half a mile, finally coming out to the light of day in the southwestern suburbs of the city, among the mills and miners' cabins; but we will take another course. Leaving the village of the Chollarites, we travel northward. Along the sides of the narrow streets are glimmering lights—some twinkling far ahead, like distant stars, and others flashing suddenly upon us as we turn the corners, with a blinding affluence of light. As we proceed with our journey we meet with many picturesque groups of miners at their labours. Here they are delving out chambers in the precious silver rock, and their hoisting into place the stout timbers that are to support the mountain and the city above. We pass through the roomy caverns, whose space robs our candles of light, and in whose walls yawn gloomy galleries, leading we know not whither, and about and within whose black portals cubic pyrites and brilliant quartz crytals flash back the light of our candles in a thousand merry glowworm twinkles. After passing through subterranean villages of divers mining companies, we come

to the thriving settlement of the savage people. Having halted in their hospitable hamlet long enough to make some enquiries relative to our road to the next village, the home of the Gould and Curry tribe, we take our leave and pursue our journey. In our course we see many wonders, meet with numerous adventures, and encounter many a solitary traveller—but not a "solitary horseman"—walk on the brink of more than one yawning chasm, and experience numerous and mixed sensations; but finally reach the Gould and Curry clan in safety. We find them quite a civilised people. Although more than 400 ft. below the street of the city, we here find a large building with a huge steam-engine in it, puffing away as comfortably as though there were no surface to the earth, with green trees, singing birds, and the sun shining upon all and everywhere. We enter the building, take a seat, sip a glass of champagne, light a cigar, and, as we watch its curling smoke mingling with the white wreaths of steam from the hissing engine wonder whether we are really within the earth or upon it.

Lamps are burning upon the walls, persons are passing through the room in which we are seated, are going down stairs, coming up stairs, bustling in every direction—a new face each minute. We appear to have stumbled among the gnomes. We find in passing through the village that the people here have railroads running in every direction, and, as the world above, have to clear the way for the rushing trains that with firey eyes dart wrathfully out from dark and lonesome roads. With a "whiz" the cars fly past us and speed away down what seems one of the dreary lanes to Satan's sooty kingdom—a by way leading straight into the smoky capital. About us we occasionally hear the splashing of water, mingled with creaking sounds, and pass through places where the air strikes damp and cold upon our cheeks, to enter which is hot and stifling.

Suddenly peals of thunder burst over our heads, and every gallery and cavern echoes its roar. Our nerves are soon quiet, for we know that the noise was but the discharge of a ton of ore through some of the chutes above. There are inhabitants far above us towards the surface of the earth—the place is like a huge ant hill. Again, upon a sudden, our ears are rent by an explosion—above, below, somewhere—which causes us for a moment to suppose that the earth had burst in its centre, and is no longer a thing of substantiality. We know that it was but a blast, which thus caused the whole place to shudder, and smile at our late nervousness. There are many roads leading from Gould and Curry, and we might travel half a mile in several directions, but we will continue our journey northward, and rise to the surface at the works of the Best and Belcher, through a shaft some 400 ft. in depth. Here we land nearly 100 rods north of where we descended

Our underground railways are being extended daily in every direction, and will soon be connected with those of the Gold Hill mines, and these again with those of the American Flat. In a very few years more there will be miles of these subterranean streets meandering under, and running from one to another of our cities.

EXTRAORDINARY CHARACTER OF THE ACCIDENT TO THE CABLE.

[Correspondence of the London Times.]

VALENTIA, Thursday, July 27.

At last the mystery of the breakdown of the cable is known in all its details. The master of the Hawk, which returned here this evening, having left the great ship last night, brings full particulars, both of the extraordinary nature of the accident. and the still more curious manner in which it was discovered, its place ascertained, the cable hauled in, and the piece cut out. When about eighty miles off land, with dead calm weather, the ship going six knots. and the cable, we are told, running out as softly as a "silk rope," the usual test signals were being sent through, when suddenly both those to and from the shore gave most serious indications of faulty insulation. The utmost alarm was felt on this discovery. The connections of the instruments were carefully re-examined, and the most rigid exactness observed in the final tests. All gave the same result, and, what was a still more certain and ominous proof, the return currents from Valentia showed an equal loss. Notice was instantly given to Mr. Canning and Captain Anderson, and the speed of the Great Eastern, which was then in 300 fathoms, was reduced to almost a stand-still. It must be remembered that all these signals were sent and received through the whole length of 2,300 nautical miles, or about 2,700 statute miles, of wire. Valentia was instantly communicated with, and the whole electrical staff under Mr. De Santy set to work to ascertain by resistance tests whether the fault was in the ship or in the 80 miles that had been paid out. Trials of so delicate a nature and of such vital importance to the success of the undertaking were, of course, conducted with the most vigilant caution, and the calculations based upon their *data* made and re-made to insure certainty. The result of all was a unanimous decision that the fault was not on board, but in the eighty miles of submerged wire. When the decision had been arrived at the cable was at once cut on board the Great Eastern, and the length under water tested by Mr. Saunders. With wonderful skill his tests at once "localized" the spot where the fault existed,—eleven miles from the stern of the ship, and within a quarter of a mile from where it actually was. Instantly preparations were made for getting the Great Eastern round, and employing the winding apparatus fixed forward specially to be used in case of such mishaps. It was hoped, of course, that its use would never be required, and very many believed that whether required or not it would never accomplish what it was intended to achieve. The result proved the falacy of both hopes and fears. The severed portion of the cable was passed into this machine, and, the Great Eastern steaming back over the rope's course, the work of reeling-in at once began. The cable came up with singular ease. The strain on the dynamometer of the machine never exceeded eighteen hundred weight, which was nothing to a cable guaranteed not to break under seven tons, and equal from its specific gravity, to supporting eleven miles of its weight in water, or through a deeper sea than soundings have ever yet found in the world As we have said, within a quarter of a mile of the spot indicated by Mr. Saunders, the fault was found; and nothing can more strangly indicate the endless perils with which successful submarine telegraphy is beset than the trivial and almost unavoidable accident which had caused it.

As the lengths of wire of 100 or 150 miles were manufactured at Messrs. Glass & Elliott's they were taken down in barges and coiled away in the tanks on board the Great Eastern, Each as it arrived was of course spliced up to that which had preceded it, and this was often done in the tanks themselves The operation of splicing not only means joining the conductor, but also joining the outside wires, the junction of the latter being made at different lengths—the bits of wire cut out being thrown away. It seems, however, that one of these atoms of wire, about two inches long, and as thick as a stout darning needle, fell on the coil unnoticed—as, indeed, who would notice it, or for a moment think of the consequences which its disregarded presence in such a spot might surely occasion? The weight of the layers of cable laid above this fragement—as insignificant as a shaving in a carpenter's shop—pressed it firmly into the tarred hemp which forms the outside covering of the cable. To this it adhered. While in the tank it did no harm, but when this portion came to be paid out, the small diameter of the eight leading wheels, which give access to the paying-out machine, and the weight of the jockey pulleys over these which keep the rope in its place, bent the stout iron wire so sharply that it passed between the hemp, pierced the gutta percha through at least two or three of its four folds and there remained. In this state it was found, and instantly recognized as a piece of wire from a splice joint. A short length of cable was at once cut, a new splice made, vigilently tested, and gradually sunk. When on the bottom it was again re tested for some hours, and the signals were shown to be absolutely perfect.

During all this time the Great Eastern remained quietly hove to. The sea was calm, and even the throbbing swell of the Atlantic had died away into the mere undulation of a wave. The motion in her therefore was barely perceptible to the feeling, and could certainly not be detected by the sight, save by watching the little arc of a circle which her topmasts now and then described. The whole accident caused a delay of nearly twenty-four hours, during which the drift of the vessel was almost nothing. Here it is generally regarded as a most gratifying fact, and one auguring well for the success of the attempt, that not only can a fault be discovered at once, but its place indicated, the cable hauled in again, and the piece repaired or cut out.

SUBMARINE CABLES.

WHO SUGGESTED THEM, AND WHERE THEY WERE FIRST USED—THE GUTTER PERCHA COVERING, AND WHO INVENTED IT.

In crossing the navigable streams by air telegraph lines the greatest difficulty which has presented itself to telegraphers has resulted from ice and sleet, the accumulations of each often becoming so great as to break down the wires In placing the wire beneath the streams the difficulty has resulted from the impossibility of obtaining a perfect insulation. To find a substitute which would remedy these defects or remove these difficulties was a study for years with telegraphers, and the discovery and application of a protective covering for submerged telegraphic cables has enriched thousands, almost everybody who ever engaged in its manufacture save and except the discoverer or inventor, Dr. J. J. Craven. At this time of great submerged cables a brief account of the first attempt to lay a gutta percha covered telegraph wire will be found of interest.

A COATING OF LEAD, GLASS AND ASPHALTUM.

Among the first coverings ever used was one made of glass beads strung on a copper wire and then enclosed in a leaden pipe. The glass, being non-conducting, prevented a metallic connection between the conductor and the tubing. The pipe was then coiled in a warm bath, the ends elevated and the entire coil filled with hot asphaltum. It was expected that this would fill all the interstices and prevent, not only the metallic connection between the conductor and the tubing, but the contact of the wire with the water. Another method of preparing submarine wire was by a coating of asphaltum and hemp. These, however, failed.

FIRST USE OF GUTTA PERCHA.

Late in 1847, gutta percha was introduced into this country, and J. J. Craven, who was then engaged in the superintendence of telegraphs throughout the country, obtained a sample of the first invoice sent to America. Among its properties he imagined, and subsequently satisfied himself, was that of non-conductivity of electricity. He found by experiment that it was in every way well adapted for the covering of the telegraph wires. At that period he made the following experiments:—

He covered rudely a piece of wire of about fifty feet in length, which he carried to Bond's creek, a small stream between Newark, N. J., and Elizabeth, N. J. and there, cutting one of the two wires which connected Washington, D, C., with New York, placed his hastily prepared cable in the circuit and plunged it into the waters of the creek. By the aid of the magnet he was enabled to see that the communication between the two cities was uninterrupted. After leaving it down for two hours, and testing the perfection of the insulation to his satisfaction, he reported immediately to the President of the telegraph company that he was prepared to cover a wire that would work uninterruptedly across the Hudson river.

At that time the wires at the crossing of the Passaic

(Continued on page 55.)

GAS-LIGHT COMPANIES IN THE UNITED STATE

Compiled from official sources expressly for the AMERICAN GAS-LIGHT JOURNAL.

When Chartered.	Town.	State.	Chartered Capital.
1857	Adrian	Mich.	50,000
1856	Akron	O.	20 000
1845	Albany	N. Y.	25 . 0
1858	Albion	N. Y.	30,000
1851	Alexandria	Va.	106,580
1852	Alleghany	Pa.	200,000
1858	Allentown	Pa.	60,000
1857	Alton	Ill.	75,000
1859	Altoona	Pa.	40,000
1859	Amesbury and Salisbury	Mass.	30,000
1858	Annapolis	Md.	100,000
1858	Ann Arbor	Mich.	25,000
1858	Astoria	N. Y.	20,000
1855	Atlanta	Ga.	50,000
1857	Attleboro'	Mass.	6,000
1850	Auburn	N. Y.	80,000
1851	Augusta	Ga.	80,000
1838	Augusta and Hallowell	Me.	84,700
1860	Aurora	Ind.	10,000
1817	Baltimore	Md.	550,000
1852	Bangor	Me.	120,000
1855	Batavia	N. Y.	32,000
1858	Bath	Me.	65 000
1859	Bath	N. Y.	15,000
1861	Battle Creek	Mich.	15,000
1858	Belfast	Me.	14,000
1856	Bellefont	Pa.	20,000
	Beloit	Wis.	30,000
1854	Bethlehem	Pa.	50,000
1859	Beverly	Mass.	40,000
1853	Binghampton	N. Y.	50,000
1859	Birmingham	Pa.	40,000
1855	Bloomington	Ill.	40,000
1858	Bordentown	N. J.	50,000
1822	Boston	Mass.	1,000,000
1849	Brattleboro'	Vt.	21.000
1851	Bridgeport	Ct.	90,000
1857	Bridgeton	N. J.	50,000
1856	Bristol	Pa.	30,000
1855	Bristol	R. I.	35,000
1859	Brockport	N. Y.	25,000
1853	Brookline	Mass.	77,000
1825	Brooklyn	N. Y.	2,000,000
	Brownsville	Pa.	
1848	Buffalo	N. Y.	600,000
1852	Burlington	N. J.	100.000
1853	Burlington	Vt.	75,000
1859	Burlington	Iowa.	65,000
1861	Calias	Me.	90,000
1852	Cambridge	Mass.	800,000
1852	Camben	N. J.	800,000
1853	Canandaigua	N. Y.	50,000
1856	Canton	O.	19,0 0
1853	Cape Island	N. J.	80,000
1860	Carbondale	Pa.	16,000
1835	Carlisle	Pa.	30,000
1856	Catasaqua	Pa.	15,000
1858	Catskill	N. Y.	
1857	Chambersburg	Pa.	30,000
1846	Charleston	S. C.	723,800
1851	Charlestown	Mass.	200,000
1859	Charlotte	N. C.	14.000
1859	Charlotteville	Vt.	15,000
1851	Chelsea	Mass.	100.000
1856	Chester	Pa.	35,000
1849	Chicago	Ill.	1,300,000
1857	Chicoyee	Mass.	50,000
1851	Chillicothe	O.	40,000
1841	Cincinnati	O.	1,000,000
1859	Citizens', Brooklyn	N. Y.	1,000,000
1860	Citizens', Reading	Mass.	90,000
	Clarksville	Tenn.	100,000
1860	Claremont	N. H.	20.000
1846	Cleveland	O.	200,000
1858	Clinton	Mass.	30,000
1859	Clyde	N. Y.	10,000
1854	Cohoes	N. Y.	50,000
1860	Cold Spring	N. Y.	30,000
1860	Cold Water	Mich.	25,000
1852	Columbia	Pa.	37,500
1852	Columbia	. C.	44,000
1857	Columbia	Cal.	50,000
1858	Columbus	Ga.	54,000
1850	Columbus	O.	100,000
1858	Concord	N. H.	50 000
1858	Covington and Newport	Ky.	100 000
1854	Cumberland	Md.	60,000
1857	Danbury	Ct.	50,000
1856	Danville	Pa.	30,000
1855	Davenport	Iowa.	56,000
1848	Dayton	O.	50,000
1853	Dedham	Mass.	40 000
1860	Deleware	O.	30,000
1849	Detroit	Mich.	500,000
1860	Dobbs' Ferry	N. Y.	25,000
1854	Dorchester	Mass.	150,000
1859	Dover	Del.	12,000
	Dover	N. H.	
1857	Doylestown	Pa.	50,000
1854	Dubuque	Iowa.	50,000
1858	East Boston	Mass.	133,000
1858	East Greonwich	R. I.	11,200
1861	East Hampton	Mass.	10,000
1861	East New York	N. Y.	50,000
1857	Easton	Md.	9,000
1850	Easton	Pa.	125,000
1856	Eastport	Me.	50,000
1855	Elizabeth	N J.	100,000
	Ellicott's Mills	Md.	10,000
1852	Elmira	N. Y.	50,000
1852	Erie	Pa.	68.000
1858	Evansville	Ind.	60,000
	Exeter	N. H.	60,000
	Fair Haven	Ct.	20,000
1847	Fall River	Mass.	26,000
1859	Fayetteville	N. C.	25,000
	Fifth Ward (Milwaukee)	Wis.	50,000
1857	Fishkill	N Y.	10,000
1853	Fitchburg	Mass.	100,000
1859	Flemington	N J.	20,000
1855	Flushing	N. Y.	20,000
1858	Folsom	al.	
	Fort Wayne	Ind.	40,000
1851	Frankfort	Ky.	50,000
1851	Frederick City	Md.	26,000
1854	Fredericksburg	Va.	72,500
1858	Fredonia (Natural Gas)	N. Y.	10.000
1856	Freeport	Ill.	20,000

When Chartered.	Town.	State.	Chartered Capital.
1859	Fremont	O	25 000
1858	Fulton	N Y	12 000
1855	Galena	Ill	70 000
1859	Gallon	O	25 000
1858	Galveston	Texas	150 000
1854	Gardiner	Me	100 000
1853	Geneva	N Y	75 000
1851	Germantown	Pa	Merged
1859	Gettysburg	Pa	20 000
1854	Glenn's Falls	N Y	85 000
1854	Gloucester	Mass	40 000
1857	Gloversville	N Y	15 000
1858	Grand Rapids	Mich	50 000
1855	Great Barrington	Mass	5 000
1849	Great Falls	N H	50 000
1860	Greenfield	Mass	20 000
1853	Greenpoint	N Y	100 000
1859	Greensboro'	N C	12 000
1853	Greensburg	Pa	30 000
1854	Hagerstown	Md	15 000
	Hamilton	O	15 000
1859	Hannibal	Mo	100 000
1857	Harlem	N Y	350 000
1855	Harrisburg	Pa	100 000
1849	Hartford	Ct	200 000
	Hastings	N Y	
1853	Haverhill	Mass	50 000
1859	Haverstraw	N Y	20 000
1861	Haverville	Mass	15 000
1859	Hempstead	N Y	16 000
1862	Hoboken	N J	100 000
1856	Hollidaysburg	Pa	30 000
1861	Hollyoke	Mass	20 000
1861	Homer & Cortlandt	N Y	40 000
1854	Honesdale	Pa	30 000
1860	Hornellsville	N Y	12 000
1858	Hudson	N Y	50 000
	Hunter's Point	N Y	
1857	Huntington	Pa	18 000
1856	Huntsville	Ala	7 825
1857	Indianapolis	Ind	150 000
1852	Iowa City	Iowa	40 000
	Ithaca	N Y	75 000
1857	Jackson	Mich	25 000
	Jackson	Miss	80 000
	Jackson	Cal	50 000
	Jacksonville	Flor	35 000
1858	Jacksonville	Ind	50 000
1856	Jacksonville	Mo	25 000
1853	Jamaica	N Y	20 000
	Jamaica Plain	Mass	78 000
1856	Jamestown	N Y	25 000
	Janesville	Wis	50 000
1853	Jeffersonville	Md	30 000
1858	Jersey City	N J	300 000
1856	Jersey Shore	Pa	15 000
1857	Johnstown	Pa	80 000
	Joliet	Ill	300 000
1858			
1860	Kalamazoo	Mich	30 000
1855	Keene	N Y	60 000
1855	Keokuk	Iowa	100 000
1859	Kingston	Pa	50 000
1854	Kittanning	Pa	20 000
	Knoxville	Tenn	63 000
1860			
1859	Laconia	N H	20 000
1854	La Crosse City	Wis	100 000
1856	Lafayette	Ind	60 000
1849	Lampertville	N J	30 000
1856	Lancaster	Pa	100 000
1855	Lancaster	O	25 000
1849	Lansinburg	N Y	25 000
1859	Lawrence	Mass	200 000
1856	Leavenworth	Kansas	200 000
1861	Lebanon	Pa	26 000
1858	Le Roy	N Y	25 000
1852	Lewisburg	Pa	20 000
1856	Lewiston	Me	100 000
1858	Lewistown	Pa	30 000
1853	Lexington	Ky	100 000
1861	Little Falls	N Y	112 000
1858	Little Rock	Ark	20 000
	Lockhaven	Pa	28 000
	Lockport	N Y	100 000
1838	Logansport	Ind	40 000
1849	Louisville	Ky	600 000
1852	Lowell	Mass	200 000
1852	Lynchburg	Va	70 000
1859	Lynn	Mass	55 000
	Lyons	N Y	80 000
1852	Macon	Ga	75 160
1851	Madison	Ind	160 000
1855	Madison	Wis	100 000
1854	Malden & Melrose	Mass	50 600
1852	Manayunk	Pa	40 000
1852	Manchester	N H	100 000
1830	Manhattan (N. Y. City)	N Y	4,000 000
	Mansfield	O	25 000
1854	Marblehead	Mass	40 000
	Marlboro'	Mass	20 000
	Manch Chunk	Pa	50 000
1857	Marietta	O	50 000
1860	Marion	O	12 000
1858	Marysville	Cal	50 000
1847	Massilon	O	20 000
1855	Meadville	Pa	89 000
	Medina	N Y	2 000
1852	Memphis	Tenn	300 000
	Meriden	Ct	20 000
1859	Metropolitan (N. Y. City)	N Y	1,000 000
1859	Middleboro'	Mass	15 000
1858	Middletown	Ct	50 000
	Middletown	N Y	
	Milford	Mass	20 000
	Milledgeville	Ga	100 000
	Milton	Pa	10 000
1847	Milwaukee	Wis	400 000
1852	Mobile	Ala	200 000
1836	Monroe	Mich	40 000
1852	Montgomery	Ala	100 000
1856	Montpelier	Vt	30 000
1859	Morrisania	N Y	30 000
1859	Morristown	N J	18 000
1854	Mount Holly	N J	16 650
	Mount Vernon	O	50 000
1857	Muscatine	Iowa	60 000
1854	Nantucket	Mass	50 000

GAS-LIGHT COMPANIES IN THE UNITED STATES,

Compiled from official sources for the AMERICAN GAS LIGHT JOURNAL.

When Chartered.	Town.	State.	Chartered Capital.
1852	Nashua	N H	45 000
1850	Nashville	Tenn	00 000
1868	Natchez	Miss	46 000
	Nevada City	C al	
1852	New Albany	n d	200 000
1846	Newark	N J	362 000
1856	Newark	O	30 000
1852	New Bedford	Mass	130 000
1850	Newbern	N C	22 000
	New Brrtain	Ct	30 000
1851	New Brunswick	N J	100 000
1852	Newburg	N Y	67 000
1852	Newburyport	Mass	150 000
1857	Newcastle	Del	32 300
1847	New Haven	Ct	250 000
1856	New London	Ct	70 000
1835	New Orleans	La	1.500 000
1853	Newport	R I	130 000
1854	Newton & Watertown	Mass	92 009
	Newton	N J	30 000
	Newton	Pa	20 000
	Newtown	N Y	
1823	New York	N Y	1,000 000
1830	Niagara Falls	N Y	15 000
	Norfolk	Va	60 000
1853	Norristown	Pa	41 700
1835	North Attleboro	Mass	50 000
	Northern Liberties	Pa	00 000
	North Adams	Mass	425 000
1856	Northampton	Mass	35 000
1850	North Bridgewater	Mass	16 000
1856	Norwalk	Ct	30 000
1850	Norwalk	O	30 000
1854	Norwich	Ct	75 000
1861	Norwich	N Y	12 000
1859	Nyack	N Y	20 000
1860	Oberlin	O	10 000
1855	Ogdensburg	N Y	75 000
1850	Orange	N J	65 000
1852	Oswego	N Y	81 200
1855	Ottawa	Ill	45 000
2856	Owego	N Y	40 000
1860	Owensboro	Ky	25 000
1856	Paducah	Ky	75 000
1856	Painsville	O	40 000
1847	Palmyra	N Y	12 000
1850	Paterson	N J	125 000
1855	Pawtucket	R I	75 000
1860	Peekskill	N Y	31 000
1859	Penn Yan	N Y	12 000
1855	Peoples' Chicago	Ill	500 000
1852	Peoria	Ill	100 000
1841	Petersburg	Va	120 000
1855	Philadelphia	Pa	3,000 000
1835	Piqua	O	50 000
1854	Pittsburg	Pa	300 000
1859	Pittsfield	Mass	50 000
1860	Placerville	Cal	30 000
1859	Plainfield	N J	25 000
1858	Plattsburg	N Y	16 000
1760	Plymouth	Mass	40 000
1860	Port Chester	N Y	50 000
1849	Port Jevis	N Y	20 000
1850	Portland	Me	300 000
1859	Portland	Oreg	50 000
1851	Port Lavaca	Texas	50 000
1855	Portsmouth	N H	70 000
1855	Portsmouth	O	50 000
1856	Portsmouth	Va	100 000
1850	Pottstown	Pa	20 000
1850	Pottsville	Pa	110 000
1843	Poughkeepsie	N Y	84 000
1858	Providence	R I	1.000 000
	Quincy	Ill	300 000
1855	Quincy	Mass	00 000
1857	Racine	Wis	
1858	Rahway	N J	43 000
1848	Raleigh	N C	50 000
1851	Reading	Pa	25 000
1859	Richmond	Va	100 000
	Richmond	Mass	841 975
1839	Richmond County	N Y	40 000
1852	Ripley	O	
1857	Rochester	N Y	25 000
1854	Rockford	Ill	200 000
1854	Rock Island	Ill	40 000
1852	Rockland	M	100 000
854	Rome	N Y	50 000
1854	Rondout and Kingston	N Y	35 000
1859	Roxbury	Mass	65 150
	Rutland	Vt	150 000
	Saco	Me	20 000
1857	Sacremento	Cal	71 600
1859	Sag Harbor	N Y	500 000
1858	Saint Albans	Vt	20 000
	Saint Johnsbury	Vt	15 000
1857	Saint Joseph	Mo	30 000
1859	Saint Louis	Mo	50 000
1857	Saint Paul	Min	600 000
1856	Salem	N J	200 000
1850	Salem	Mass	30 000
1859	Salem	O	200 000
1859	Salisbury	N C	25 000
	Salisbury Mills	Mass	14 600
	Salmon Falls	Me	1 250
	San Antonio	Texas	25 000
1854	Sandusky	O	78 000
1859	Sandwich	Mass	75 000
1862	San Francisco	Cal	10 000
	San Jose	Cal	
1858	Saratoga Springs	N Y	2,000 000
	Saugerties	N Y	
1849	Savannah	Ga	30 000
1851	Schenectady	N Y	30 000
1858	Scranton, Gas and Water	Pa	200 000
1857	Selma	Ala	50 000
1856	Seneca Falls and Waterloo	N Y	100 000
	Shreveport	La	20 000
1850	Sing Sing	N Y	80 000
	Smyrna	Del	40 000
1860	South Adnas,	Mass	
1839	South Bridge	Mass	10 000
	South Boston	Mass	5 000
	Springfield	O	200 000
1854	Springfield	Ill	200 000
1848	Springfield	Mass	75 000
1856	Stamford	Ct	100 000
1851	Staten Island	N Y	6 250
			150

When Chartered.	Town.	State.	Chartered Capital.
1856	Staunton	Va.	18 000
	Steubenville	O.	150 00a
	Stockton	Cal.	50 000
1848	Syracuse	N Y	125 000
	Tamaqua	Pa	40 000
1859	Tarrytown and Irvington	N Y	70 000
1853	Taunton	Mass	100 000
	Terre Haute	Ind.	100 000
	Thompsonville	Ct	25 000
	Tiffin	O	25 000
1853	Toledo	O	100 000
1847	Trenton	N J	100 000
1848	Troy	N Y	200 000
1856	Urbana	O	30 000
1849	Utica	N Y	80 000
1853	Vicksburg	Miss	66 000
1850	Vincennes	Ind	25 000
1863	Virginina City	N T	2 500
1853	Walden	N Y	100 000
1858	Waltham	Mass	30 000
1857	Ware	Mass	30 000
1861	Warren	O	20 000
1854	Warren	R I	500 000
1855	Washington	D C	15 000
1859	Washington	N C	20 000
1848	Washington	Pa	100 000
1854	Waterbury	Ct	00 000
1852	Waterford	N Y	20 000
1852	Watertown	N Y	25 000
1856	Watertown	Wis	30 000
1858	Wautome	Wis	20 000
1857	Waverly	Miss	60 000
1854	West Cambridge	Mass	100 000
1852	Westchester	Pa	25 000
	Westfield	Mass	20 000
	Weston	O	10 000
1857	West Point	N Y	100 000
1853	West Troy	N Y	75 000
1850	Wheeling	Va	20 000
	White Plains	N Y	50 000
1856	Wilkesbarre	Pa	1,000 000
1850	Williamsburg	N Y	30 000
1858	Williamsburg	Va	70 000
1857	Williamsport	Pa	12 000
1859	Williamantic	Ct	60 000
1858	Wilmington	N C	200 000
1852	Wilmington	Del	35 000
1854	Winchester	Va	20 000
1861	Windsor	Vt	20 000
	Woburn	Mass	10 900
1856	Woodstock	Vt	82 600
1853	Woonsocket	R I	25 000
1856	Wooster	O	160 000
1849	Worcester	Mass	
1855	Xenia	O	40 000
1854	Yonkers	N Y	100 000
1849	York	Pa	40 000
	Yorkville	S C	20 000
1858	Ypsilanti	Mich	20 000
1850	Yreka	Cal	30 000
1845	Zanesville	O	44 000

When Chartered.	Gas-Light Companies in the British Provinces of N. A	Province	Chartered Capital.
1854	Belleville	C W	33 040
1854	Brankford	C W	32 000
	Brockville	C W	50 000
	Chatham	N B	50 000
1854	Charlotte Town	P E I	50 000
1857	Cobourg	C W	30 000
	Dundas	C W	30 000
	Frederick	N B	50 000
1843	Halifax	N S	160 000
1850	Hamilton	C W	125 000
1848	Kingston	C W	80 000
1853	London	C W	100 000
1847	Montreal	C E	400 000
1854	Ottawa	C W	40 000
1859	Point Levi	C E	25 000
1859	Port Hope	C W	28 000
1847	Quebec	C E	200 000
1848	Saint Catherine's	C W	80 000
1859	Saint Hyacinthe	C E	15 000
	Saint John	N B	170 005
	Saint Johns	N F	50 000
1858	Sorel	C E	14 000
1848	Toronto	C W	400 000

When Chartered.	Gas-Light Companies in Cuba, Mexico, South America & New Zealand,	State	Chartered Capital.
1857	Callao	Chile	
	Cardenas Cubana	Cuba	50 000
	Compania	Hav'a	500 000
	Cienfugos	Cuba	
	Guanabacoa	Cuba	
	Regla	Cuba	
	Trinidad	Cuba	
	Guiness	Cuba	
	Guyaquil	S A	150 000
	Havana	Cuba	2,000 000
	Lima	Peru	100 000
	Maranham (Ghartered)		
	Matangas	Cuba	50 000
	Mexico City	Mex	550 000
1854	Montevideo	S A	500 000
	Para (Ghartered)		
1857	Rio de Janeiro	S A	1,000 000
	San Iago	Chile	500 000
	Saint Jago de Cuba	Cuba	450 000
	Valparaiso	Chile	500 000
	Vera Grus	Mex	500 000
	Ville Clara	Cuba	50 000
	Auckland	N Z	

Gas Companies of which we have not received their date of Charter or amount of capital.

Amsterdam, N. Y.	Ellsworth, Me	Hollis Springs, Miss	Naugatuck, Con
Belleville Ill.	East Saginaw, Mich	Johnstown, N. Y	Parkersburg, W. V.
Balston N Y.	Fond-du-lac, Wis.	Kansas City,	Princeton
Bucyrus, O.	Georgetown, D. C	La Porte, Ind	Reading, Mass
Canta, N. Y.	Genesee, N. Y.	Medford, Mass	Richmond, Ind
Cooperstown, N. Y.	Grafton, Va.	Middletown, Pa	Rockville, Con.
Corning, N Y.	Greenville, S. C.	Milton, Mass	Rome, Ga.
Citizens Gas Co. San Francisco	Hanover, Pa.	Mount Vernon, N. Y.	Salem, N. C
Danvers, Mass	Henderson, Ky.	Murfreesboro, Tenn.	Honolulu.

river were connected at the draw by thumb screws, and during the passage of vessels the business of the line was interrupted. Communication had been held previously by means of one of the before mentioned methods—that of the covering of asphaltum and lead pipe. Craven obtained the consent of the company to place beneath the draw a piece of wire that he had covered as an experiment. This was done, and the line worked successfully for some time. This was the first cable put in practical use.

CRAVEN'S FIRST CABLE ACROSS THE HUDSON RIVER.

A gentleman named Reynolds, of the firm of Reynolds & Company, of Duane street, in this city, had put up an expensive machine for the purpose of covering wires with india rubber, and protecting them from the weather and the effects of atmospheric electricity, which, in the early history of telegraphing, was a subject of great annoyance. It was found that this machinery was elegantly adapted for covering wire with the newly discovered material, and the New York and Washington Telegraph Company directed Reynolds to prepare them, under the supervision of Craven, a cable of sufficient length to cross the Hudson river. The cable was prepared with two distinct coverings of gutta percha, and Craven with his huge cable upon the deck of the little steamer Gipsy, landed the shore end at the Cunard dock, Jersey City, distributed his wire to the bottom of the Hudson, landing the other end at Albany dock, foot of Cortlandt street. The operators in the office at Hanover street watched anxiously when the connection should be made, and soon had the satisfaction of testing Craven's cable and finding Washington and New York "O. K."

This cable, however, was used but a few days. A Bremen bark dropped her anchor near the cable, and, getting under way, produced "that terrible solution of continuity." As soon as Craven found that his experments at the creek were successful, he prepared a short piece of substantial cable, and, together with a specification and application for a patent, forwarded it to the Commissioner of Patents at Washington, D. C., representing in his application that the insulation was complete and perfect, claiming himself the discoverer of the application of gutta percha as an insulation for submarine telegraphic purposes, and declaring that he was then working successfully a piece of a similarly prepared wire, beneath the bed of a schooner. He furthermore declared it to be his opinion that bays, seas and oceans would yet be crossed by the telegraph, and that the continents would be joined. His application for a patent was refused, on the ground that it had been stated in one of the English journals in giving a description of this new found material that it was a non-conducting material. This was all true, but no one had ever yet thought of using it for telegraphic purposes.

Mr. Craven, however, lost his patent, and shared the fate common to men of inventive genus. He labored on while other men adapted his invention grew more rich by its practical application. Nations were benefited by his discovery, while he gained neither wealth nor fame. It was by Americans hands that the first telegraphic wire was covered and the first submarine cable was laid. Some time after his failure to obtain his patent Mr. Craven began the study and practice of medicine, and on the breaking out of the war was appointed surgeon in the First New York Volunteers. While in the service he held all the different grades of his profession up to the directorship of an army, and when active service in the field ceased he was appointed Medical Director of a district and stationed at Fortress Monroe.

GAS.

GAS IN LONDON.

We gave minute details recently of the amounts expended on capital account by the great gas companies of London, and it is time now to see the results attained by the first establishment expenditure incurred. The receipts by each company in 1861, 1862, and 1863, from the sale of gas, were as follows:—

Company.	1861.	1862.	1863
Chartered	£207,661	£222,946.	£234,220
City of London	81,277	92,378	94,917
Commercial	94.325	103,554	113,129
Equitable	66,053	69,361	69 627
Great Central	61,883	72,485	73,040
Imperial	356,930	397,947	419,061
Independent	58,361	60,659	59,667
London	127.683	133.776	142,804
Phoenix	127,131	136,812	142,975
Ratcliff	27,477	29,033	29,960
South Metropolitan	57,407	61,168	65,327
Surrey Consumers'	46,410	49,292	51,069
Western	61,132	69,159	77,405
Total.	£1,374,732.	£1,498,570.	£1,573,201

These figures are very remarkable, showing as they do the steady progress of the consumption of gas in the metropolis. In 1863 the revenue of the companies did not increase, it will be observed, so rapidly as it advanced in the preceeding year. If, however, we compare 1863 with 1861, we see that the revenue of the Chartered advanced in the two years to the extent of 26,559*l.* that of the City of London, 13,640*l.* the Commercial, 18,804*l.* the Equitable, 3,574*l.* the Great Central, 11,157*l.* the Imperial, 62,131*l.* the Independent, 1,306*l.* the London, 15.121*l.* the Phoenix, 15,844*l.* the Ratcliff, 2,483*l.* the South Metropolitan 7,920*l.* the Surrey Consumers, 4,659*l.* and that of the Western, 15,271*l.*

The company which increased its business most largely in the two years was thus the Imperial, while the Independent was at the bottom of the list. It may be observed, that the Chartered charged, in 1863, 4s. 6d. per 1000 cubic feet for common gas, and 6s. per cubic feet for Cannel gas; the City of London the same terms; the Commercial 4s. 5d. per 1000 cubic feet for common gas; the Equitable, 4s. 6d. per 1000 cubic feet for common gas, and 6s. per 1000 cubic feet of Cannel gas; the Great Central and Imperial, the same price for common gas; the Independent, 4s. 6d., and 4s. per 1000 cubic feet for common gas, and 6s. per 1000 cubic feet for Cannel gas; the Phoenix, 4s. 3d. and 4s. 9d. per 1000 cubic feet for common gas; the Ratcliff, 4s. 6d. per 1000 cubic feet for common gas; the South Metropolitan, 4s. per 1000 cubic feet for common gas; the Surrey Consumer's, 4s. 6d. per 1000 cubic feet for common gas, with discounts varying according to the amount of consumption; and the Western, 6s. per 1000 cubic feet for Cannel gas. Some reductions have probably since been made. It may be interesting to elimiate from the companies' general receipts for gas, the amounts paid in three years for public lighting and contracts:

Company.	1861.	1862.	1863.
Chartered	£17,946	£19,071	£19,823
City of London	3,565	4,520	5,897
Commercial	13,509	13,714	13,937
Equitable	7,304	6,502	7,254
Great Central	7,808	6,320	6,866
Imperial	64,934	63,463	64,496
Independent	7,263	6,213	5,705
London	17,944	18,298	19,671
Phoenix	18,174	18,936	19,274
Ratcliff	4,035	4,101	4,102
South Metropolitan	11,060	11,202	11,436
Surrey Consumers'.	10,341	10,809	11,209
Western	10,661	10,447	10,797

This branch of the business of the companies showed no great advance; in fact, in the cases of the Equitable, the Great Central, the Imperial, and the Independent, it appeared to be less productive. Another important source of revenue with gas companies is the sale of residual products, which produced in the three years under notice the following sums to each of the undertakings which we are analysing:—

Company.	1861.	1862.	1863.
Chartered	£47,040	£39,550	$36,952
City of London	23,297	21,543	19,150
Commercial	21,393	19,630	20,292
Equitable	13,540	12,091	12,867
Great Central	20,625	18,731	19,365
Imperial	79,317	73,018	71,455
Independent	15,048	15,956	15,617
London	35,454	34.653	29,205
Phoenix	34,556	33,256	33,394
Ratcliff	7,040	6,899	7,022
South Metropolitan	16,419	15,818	15,766
Surrey Consumers'	15,492	12,710	12,326
Western	6,189	6,320	5,929

The slight decline generally observable in the recepts from residual products is attributable to the smaller amounts received for coke, which is the most important and prominent element in this source of revenue. Taking, also into account the amounts derived from the rental of meters, the sale of old materials, &c., we arrive at the following sums as the gross incomes of the various companies in the three years:—

Company.	1861.	1862.	1863.
Chartered	£265,227	£272115	£281,589
City of London	110,959	114,526	116,374
Commercial	116,251	124,176	134,853
Equitable	87.267	90,680	91.897
Great Central	95,523	108,780	120,868
Imperial	473.844	479,270,	502,367
Independent	75,108	78,738	92,817
London	168.072	176,277	194,857
Phoenix	162,192	170,588	176,697
Ratcliff	34,717	36,012	37,247
South Metropolitan	97,473	107,063	113,675
Surrey Consumers'	62,622	63,845	67,537
Western	86,513	77,750	85,584

The general income of the Chartered thus increased in 1863, as compared with that of 1861, to the extent of 16,262*l.* the City of London, 5,415*l.* the Commercial, 18,602*l.* the Equitable, 4630*l.* the Great Central, 25,345*l.* the Imperial, 23,523*l.* the Independent, 17,709*l.* the London, 36,785*l.* the Phoenix, 14,505*l.* the Ratcliff 2,630*l.* the South Metropolitan, 16,202*l.* and the Surrey Consumers', to the extent of 4,915*l.* the Western decreased, however, to the extent of 929*l.* In another paper we must examine a little into the question of working expenses, &c.—*London Mining Journal.*

TOTAL GOLD PRODUCTIONS FROM 1850 TO 1863, INCLUSIVE:

Oil sources	£202,793,000
British Columbia	5,605,000
Australia and New Zealand	136,388,000
California and United States	142,200,000
Other countries	1,018,000
Total	£488,004,000

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AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, ... EDITOR.

WEDNESDAY, AUG. 17, 1865.

☞ We shall have twenty or thirty vols. of our last year's issue bound, which we will furnish to subscribers at $3 each, or non-subscribers at $4.

The Oil Regions of Pennsylvania, showing where Petrolium is found—How it is obtained, and at what cost, with Hints for whom it may concern. By Wm. Wright. Published by Harper & Brothers, New York.

This is a very excellent work, and contains much valuable as well as interesting information. As its title indicates, it is a kind of text book, and can at all times be consulted with benefit to the searcher after knowledge in Petroleum matters.

THE QUARTZ OPERATOR'S HAND BOOK.—All occupations, whether scientific or mechanical, require a hand book, and this is just the book for the Quartz Operator. Its pages are filled with practical information which has been obtained by the most assiduous application, and it therefore is a reliable guide to the Quartz Operator. Mindful that science and practice go hand in hand, the authors have confined their investigations to useful and established facts, leaving untouched all that is doubtful and chimerical. We commend this little work to all interested in quartz operations.

SCHOOL OF MINES—COLUMBIA COLLEGE.

The School of Mines which we urged the establishment of in our early numbers, has been successfully organised at the above College, and we have recently received a pamphlet setting forth the object, a list of officers, and the course of instruction. The School of Mines will furnish to the student the means of acquiring a thorough scientific and practical knowledge of those branches of science which relate to mining and the working up of the mineral resources of this Country, and to supply to those engaged in mining and metallurgical operations, persons competent to take charge of new or old works and conduct them on thoroughly scientific principles.

The method of instruction will be lectures, given by the corps of Professors; practice in the Chemical and Metallurgical Laboratories; proposals and drawings for practice for the establishment of metallurgical works, and for mining; and reports of visits to metallurgical and other works.

The course of instruction will continue through three terms of six months each, commencing the 15th of November and closing the 15th of May, with an examination on the studies of the year.

NEW YORK, Aug. 12th, 1865.

Mr. Editor—In your issue of the 17th ult. you complain—and not for the first time—of the indisposition of Gas-men generally to communicate in writing the result of their experience, and your correspondent, "Soritia," actually challenges you "to produce a single article emanating from any Gas corporation, or any Gas officer, and calculated to enlighten the public mind with regard to the progress of scientific discoveries in their department." I have thought that it might be at least interesting to suggest some reasons for this well preserved silence.

With but few exceptions, the Gas corporations of this Country are small, working under a capital of less than $100,000. They are usually fully officered, having President, Secretary, Treasurer and Superintendent. Most companies count among their Directors the three first named officers, one of whom usually receives a salary and sundry perquisites. Being in the Direction he is looked upon at the meetings of the Board as the responsible manager of the concerns of the company, and being, of course, a stockholder and a man of more or less means and influence, he is generally regarded in about the same light by the community which his company supplies. The President, Secretary or Treasurer, whichever it may be, is in almost every case identified with business of his own which takes the most of his time and attention, and, I presume to say, that in nine cases out of ten, his knowledge of the detail of Gas manufacture and the principles involved in it, is entirely superficial. As a matter of course such men do not consider it worth while to "unfold every new truth that comes within their observation." The Superintendent of the companies alluded to, are generally young men, selected without any regard to their scientific attainments, but for good common sense, industry and sobriety. I express the hope here that I may not give offence in what I have to say, and if thought wrong some one will take pains to correct me.

Gas companies in this Country—where talent is always at a premium—don't pay enough money to secure the services of first class men to superintend the operations of manufacture, distribution, etc. Occasionally you meet an intelligent, even able man, Superintendent of some Gas works. Generally, upon inquiry, you find that his salary is—well, small. An investigation as to his daily transactions will discover that he is engaged in some extra business, or speculation, which takes his time and attention, and which is forced upon him because the Directors of his company are so short sighted as to order the amount allowed for salaries to be so small, or so divided, that an officer who has all the honor is paid a salary for doing nothing, while another officer is paid a *small* salary for doing everything.

The Superintendent's of the Gas corporations in this Country are the men who have the opportunity to study upon the proved apparatus—to search out new methods of manufacture, and they are the men from whom enlightenment might reasonably be expected. The Superintendents, however, it will be found upon investigation—and for reasons we have named—are, 1st, young men of mediocre talent—2d, young men who are obliged, because of insufficient compensation, to give time and attention to pursuits foreign to their legitimate business—and 3d, old, or rather middle-aged men, without ambition, and only valuable because of their close attention to minor details. If I am right, "Soritia" may know why many "Gas Light companies preserve such perfect and cautious silence upon all questions of scientific developments in their own special department of knowledge."

There are some good reasons for the freedom of discussion among Gas-men in England, which may perhaps be presented at another time.

Yours, etc., REYNOLDS.

GENEVA, N. Y., Aug. 11th, 1865.

Mr. Editor—In the great race of scientific men to discover the origin of Petroleum, many theories have been advanced; while I do not propose to advance any theory, I should very much like, with your permission, to make a few inquiries, and ask a few questions, fully appreciating the difference between asking questions and answering them.

Is it true that the earth is a sphere, or a ball?

That the sphere, or ball, is hollow?

That internal heat, or fire, is constantly supported to an extent that produces boiling springs, burning volcanos, earthquakes, &c., &c.?

Is it true that there was at one time in the earth's history, a period called the "upheaval period," when by the expansive force of burning gases, hills and valleys were formed, and the earth's crust, or shell, so cracked and weakened in many places as to furnish an outlet for the rapidly accumulating and expansive gases of earth's great natural gasometer? and

Would those gases be likely to be sufficiently charged, or impregnated with hydro carbons, as to be disposed, or forced to liberate them while coming in contact with the cold strata of the earth in its ascension to the surface?

And under such circumstance, would the condensation be likely to resemble petroleum?

Or, would condensation at different elevations and temperatures account for the lubricating, or heavy oils on the elevated lands of Tionista, Titusville, Sugar Creek, &c,—or for the illuminating, or lighter oils found in the great oil basin of Pithole, Cherry Run and Oil Creek?

Or, would it account in any way satisfactory, for the oils found in the sandstone of Pennsylvania, and the limestone of Canada?

These, and many other equally interesting (to me) questions I should like to have you, or some of your correspondents, answer, if they are thought worthy of attention. Yours truly, ELDER.

PETROLEUM REVIEW.

Aug. 2.—There has been no particular variation in the price of Crude since our last, though at the close the market is rather heavy at 32 to 32½ cts. Refined have undergone no special change in prices; the demand has been fair for both parcels on the spot for forward delivery; we quote bonded at 52 to 53 cts, and free at 71 to 72 cts.

Aug. 3.—The market is firm and quiet at 32½ to 33 cts. for Crude, 52 to 53 cts. for Refined in bond, and 70 to 72 cts. for do. free.

Aug. 4.—Crude was dull at 32½ to 33 cts. Refined was sparingly offered and firm at 52 to 53 cts. for bonded, and 70 to 72 cts for free.

Aug. 5.—Is dull and nominal at 32½ to 33 cts. for Crude, 52½ to 53 cts. for Refined in bond, and 70 to 71 cts. for do. free

Aug. 7.—The market is dull and prices are nominal at 31½ cts. for Crude; 51½ to 52 cts. for Refined in bond, and 70 to 71 cts. for do. free.

Aug. 8.—The market is dull and prices are nominal at 31½ cts. for Crude; 52 to 52½ cts. for Refined in bond, and 71 to 72 cts. for do. free.

Aug. 9.—The market was a shade firmer and more active. Crude 32½ to 33 cts. bonded 52 to 53½ cts. free 69 to 72 cts.

Aug. 10.—The market still rules quite firm, but the business is light; we quote Crude at 32½ to 33 cts. Refined in bond at 52½ to 54 cts. and do. Free at 70 to 72 cts.

Aug. 11.—Is dull and easier; small sales at 32 cts. for Crude, 52 cts. Refined in bond, and 70 to 71 cts. for do. free.

Aug. 12.—The market remains very quiet, but prices are without material change. We quote Crude at

32 cts. Refined, in bond, 52 cts and do. free at 70 to 71 cts.

Aug. 14.—The market is more active and prices are better, closing firm at 32½ to 33 cts. for Crude; 52 to 53 cts. for Refined in bond, and 71 to 72 cts. fo do free.

Aug. 15.—There is no particular change in prices since our last; the demand is moderate; we quote Crude at 32½ to 33 cts. Refined in bond at 53 cts. and do. free at 72 to 73 cts.

NEW YORK MINING EXCHANGE

New York, Aug. 16 1865.

	Bid.	Asked		Bid.	Asked
Copper Stocks.			***Gold Stocks.***		
Aztec	7		Benton	1	1¼
Bedford	1	1	Consol'd Gregory		28½
Boston	4⅛	5	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3¾	4⅛
Canada	3¼	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	—	—	Isaac's Harbor	⅜	⅝
Columbian	—	24	Manhattan	—	9
Copper Falls			Mariposa	44	44¼
Clifton	—	$1	Montana	½	1
Dacotah	—	5½	New York	2½	3
Derby	⅝	1⅜	N. Y. & Nova Scotia	⅝	1⅛
Douglass	—	—	Quartz Hill	9¼	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13¼	Rocky Mountain	—	10½
Frue	2¾	5	Smith & Parmelee	7	12
Grand Portage	—	—			
Hancock	12¾	14	***Coal Stocks.***		
Hamilton	—	6	American	98	100
Hilton	5	6	Ashburton	—	25
Hudson	1	2	Central	62	65
Huron	32	33	Cumberland	61	62
Indiana	8¾	9¼	Del. & Hud. Canal	206	208
Isle Royale	20	21½	*Hampshire & Balt.	104	110
Keweenaw	—	6	Pennsylvania	213	215
Knowlton	7	10			
Lafayette	1	2	***Lead Stocks.***		
Manhattan	—	—	Bucks County	⅝	⅞
Mendota	—	—	Clute	1¾	1⅞
Merrimac	4¾	5⅛	Erie	—	20
Minnesota	33	37	Macomb	3¾	5
New York, A. P.	2	3⅛	Plancentia Bay	1⅜	1¾
N. J. Consolidated	4	4⅜	Sussex	¾	⅞
Norwich	—	6	Wallkill	3½	6
Ogima	5	6¾			
Ontonagon	3	4	***Iron Stocks.***		
Penn	—	11½	Copake	8	10
Providence	1⅝		French Creek	⅝	1
Quincy	96½		Teal Lake	4½	6
Reliance	1⅛				
Rockland	12½		***Miscellaneous.***		
Superior	8¾		Rutland Marble	17	20
Sharon Consolidated	—				

* *Ex. div.*

IMPORTANT NOTICE.

To Advertisers.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look hrough our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our terms for advertisers are very reasonable.

BIRD, PERKINS & JOB,

(Formerly J. P. Melledge & Co.)

General Commission Merchants,

And Importers of

PROVINCIAL COAL,

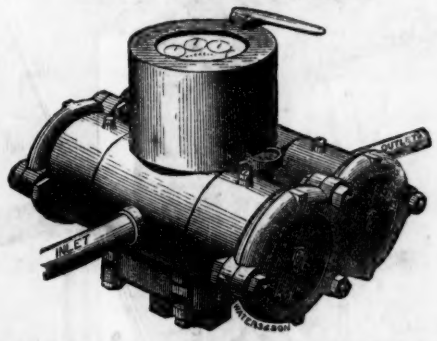
For Gas, Steam and Iron Manufactures.

39 India Wharf..... Boston.

SAM'L T. BIRD, JAMES D. PERKINS, DANIEL W. JOB. [134

ADVERTISEMENTS.

H. R. WORTHINGTON'S



PATENT WATER-METER

This Meter is also used for the measurement of Oil —it combines

ACCURACY, SIMPLICITY, and REMARKABLE DURABILITY,

with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

HENRY R. WORTHINGTON,
61 Beekman steet, N. Y.

CHASE & CO.,

New York and Philadelphia Ornamental Iron Works.

GARDEN ADORNMENTS,

VASES, FOUNTAINS, STATUARY, ARBORS, RUSTIC CHAIRS, SETTEES, TRELLISSES, &c.

Cem tery Embellishments,

URNS, IVY CROSSES, GRAVE BORDERS, WIRE ARCHES, BOQUET VASES, &c.

Wire, Cast Iron and Bronze Railings.

For enclosing Lots, Public Squares, &c.

☞ *Iron Furniture, Bedsteads, &c., &c.,*

The largest variety in the United States.

STABLE FIXTURES,

RACKS, MANGERS, &c.

No. 524 Broadway, New York,

Opposite St. Nicholas Hotel. [127

JOSEPH NASON & CO.,

No. 61 Beekman street, corner of Gold,

NEW YORK.

Manufacturers of WROUGHT IRON PIPES and Fittings for Steam, Gas and Water, Boiler Flues, Steam Boilers, Coils, Heaters, Evaporators, Pumps, Ventilating Machinery, and Apparatus for Warming Buildings by Steam and Hot Water.

OIL TUBING, CAST IRON DRIVING PIPE, Boring Tools, Oil Pumps, Sand Pumps, Stuffing Boxes, Tongs, Clamps, Swivels, Joints, &c. 131

TO GAS COMPANIES.

A Gas Engineer of thirteen years experience, desires a re-engagement. He refers, by permission, to Chas. Roome, Esq., President Manhattan Gas Co.; F. T. Willis, Esq., President Savannah Gas Co.; Ambrose L. White, Esq., Engineer Metropolitan Gas Co. Address, James R. Smedberg,
131 186 Seventh Avenue, New York City

New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for Dyspepsia, Heartburn, Debility and Prostration. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "Golden Bitters" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a Tonic. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to Ladies, and particularly to those suffering from

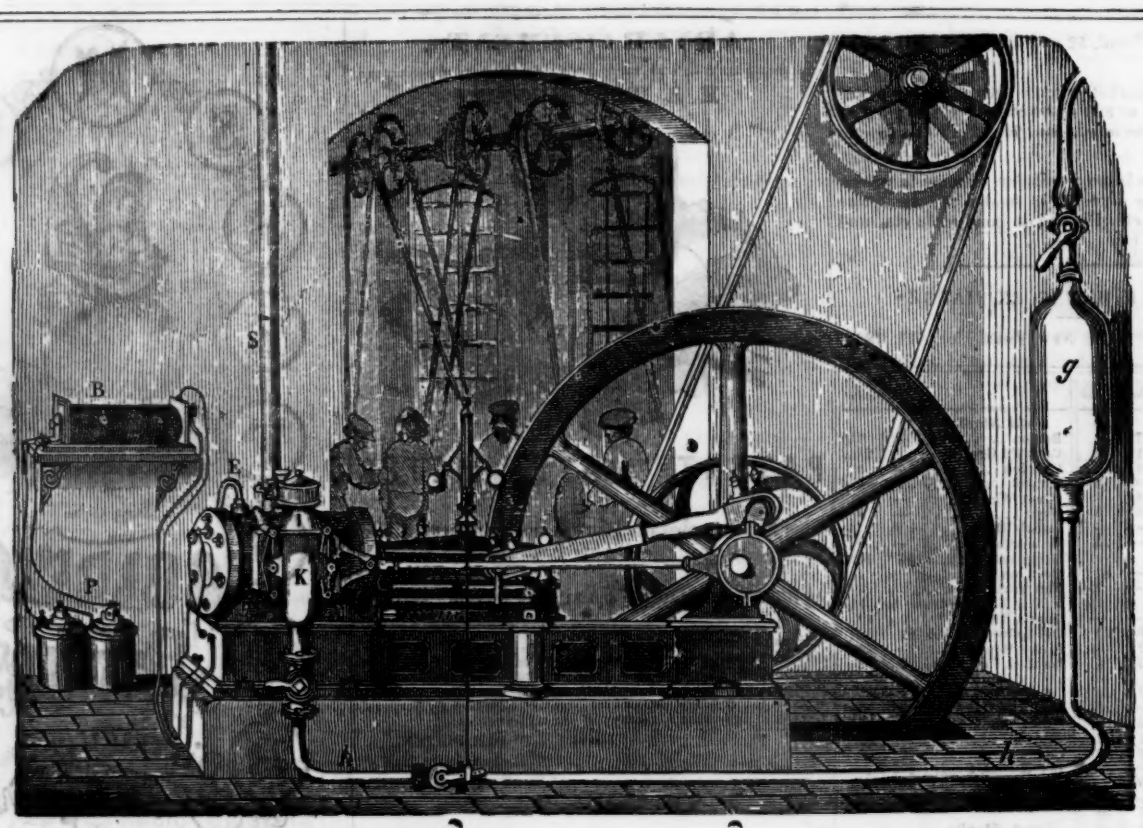
DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors.
CENTRAL DEPOT, American Exp. Building, New York.

The Golden Bitters.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end of the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

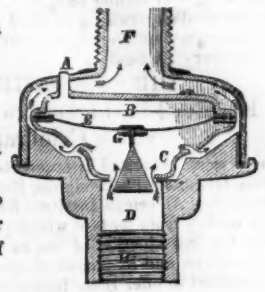
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

NTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure gunge and test meters

M. L CALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
No 23 WEST STREET, BOSTON, will meet with prompt attention.

HARRIS & BROTHER, PRACTICAL GAS METER MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by
HARRIS & BRO., No. 1117 Cherry st., Phila.

Messrs. Harris & Brother,

Philadelphia Gas Works, February 14, 1857.

Dear Sirs—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga,

Messrs. Harris & Brother, Philadelphia.

Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother.

March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion as to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States.
Respectfully Yours, GEORGE WIEGAND,
Inspector of GasFittings, Philadelphia

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of tone are unrivalled by any hitherto offered in this market. They contain all the modern improvements, French grand action, harp pedal, iron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr J H Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No. 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

LILLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	18	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

OUTSIDE.				INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	24	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27½	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19½	13½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES

SIDE BOARD		$600
DINING ROOM		350
PANTRY (No. 1)		275
PANTRY (No 2)		150
DUODECAGON BANK LOCK		100
MONITOR SAFE	do.	50
SAFE	do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

OUTSIDE.				INSIDE.			
No.	Height.			Hei	Width.	Depth.	Price.
	In.			In.	In	In.	
1	68			55	39	18	$1,200
2	61			48	39	18	1,050
3	57			42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	53	27	64	48	20	$1,000
0½	61	53	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28	
	42	36	22	38	32	19
4	36	31	20	32	27	
5	30	24	18	26	20	14

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Depart., E. ALFORD. *Corresponding Depart.*, FOWLER AND WE

WEST'S IMPROVED PUMP.

Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easier and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor."—*New York Evening Post, July 1st* 1863.

"J. D. WEST & Co: We are pleased to state that the Pumps we had of you about a year ago have been in constant use, twelve hours each day, and raise for the use of our woolen factory about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a double suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it ... to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year.... I know this, and think I may be doing the farmers good by speaking of it. A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream. It can be made to work in deep wells as well as in shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter, exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposure, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. B. MC ILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y
"J. . . POMEROY, Yonkers, N. Y.
"JOHN MESEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines factories greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co.—GENTS: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sundays), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 179 Broadway, New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

NOTICE TO CONTRACTORS.

The Board of Public Works of the city of Chicago will receive sealed proposals until and during the first day of September next, for the Excavation necessary to deepen the Illinois and Michigan Canal, according to the plan adopted, from Chicago River to Summit Lock No. 2, a distance of about 26 miles

Maps, Profiles, Specifications, &c., will be exhibited at the Office of the Board of Public Works in Chicago on and after Wednesday, the 23d of August, until the day of letting. There will be sold 3,000,000 cubic yards of earth excavation some of it quite hard, and embracing considerable detached rock, and about 500,000 cubic yards of Stratified Limestones.

It is believed that the most of the excavation, except the stratified rock can be done with steam dredges without interfering with the navigation of the Cana. but the rock excavation will all have to be done between the close of navigation in the fall and the opening in the spring The whole of the work must be done on or before the end of the third, such seasons of the suspension of navigation.

A large amount of machinery will be required to excavate the work within the time required, consisting mainly of steam dredges, scows, and cranes for the earth work and drilling machines, pumping machinery and cranes for the rock.

The Board reserve the right to reject any or all bids and no bid will be accepted unless the party proposing gives evidence satisfactory to the Board of Public Works that he is competent, reliable and responsible.

The bids will be directed to the Board of Public Works, indorsed 'Proposals for Excavating the Illinois and Michigan Canal," and accompanied with the usual $200 bond, blanks for which will be furnished at this office.

Satisfactory security for the faithful performance of the work will be required of any party who e bid may be accepted.

J. G GINDELE,
FRED. LEIZ,
O. J ROSE,
WM. GOODING,
R. B. MASON,
Board of Public Works.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency 389 Broadway, N. Y

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

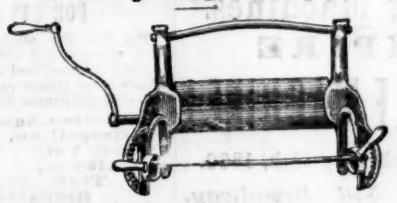
WEED SEWING MACAINE Co.,

136) 506 Broadway, New York.

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*
That a *simple* machine is better than a complicated one.
That a Wringer should be *self-adjusting, durable, and efficient.*
That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.
That wood soaked in water will *swell, shrink,* and *split.*
That wood-bearings for the shaft to run in *will wear out.*
That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*
That cog-wheel regulators are not essential.
That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.
That all who have tried it pronounce it the *best* Wringer ever made.
That it will wring a thread or a bed-quilt *without alteration*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January,* 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any,* to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.
Sample Wringers sent, express paid, on receipt of price.
Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,
18 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,
Manufacturers, No. 494 Broadway, New York
Send for Illustrated Circular. (136

AMBROSE SPENCER GILCHRIST.
(LATE CAPT. U. S. V.,)
CIVIL, MINING
AND ARCHITECTURAL ENGINEER,
No. 200 BROADWAY, Office 12.
New York.

ERIE RAILWAY.

TRAINS LEAVE FROM FOOT OF CHAMBERS STREET,

VIA PAVONIA FERRY:

7. A. M., Day Express, for Canandaigua, Rochester, Buffalo, Salamanca and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways and at Salamanca with Atlantic and Great Western Railway.
A. M., Milk and Way Train, Daily to Otisville.
8:30 A. M., Express Mail, for Buffalo, connecting :00 with Lake Shore Railway.
4:00 P. M., Way Train, for Port Jervis and Newburgh.
5:00 P. M., Night Express, for Canandaigua, Rochester, Buffalo, Salamanca and West.
6:00 P. M., Lightning Express, Daily, for Canandaigua, Rochester, Buffalo, Salamanca, Dunkirk and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways, and at Salamanca with Atlantic and Great Western Railway.
8:00 P. M., Emigrant Train, Daily, for Buffalo, Salamanca, Dunkirk and West.

TO GAS COMPANIES.

For sale at the Island Works of the Gas Co., Washington, D. C,

1 Retort House Roof, frame of iron, 141 feet long, 53 feet wide, with the slate attached.

All the Iron Work belonging to 28 benches of three Retorts each.

4 Washers, 18 inches diameter.

4 Purifiers of wrought iron, 5 feet by 11, with lids, &c.

2 Eight inch Slide Valves.

1 Five foot Station Meter, together with sundry connections, the whole forming a complete Gas Station in good order. For examination, apply to

GEO. A. MCILHENNY, Eng. Gas Works, Washington, D.C

For purchasing, apply to B H. BARTOL, Philadelphia.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c, for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four months duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments. I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,
127] No. 2 Pearl st, House, Boston.

Gas Fixtures and House Furnishing GOODS.

E V. HAUGHWOUT & CO.,

No.'s 488, 490 and 492 Broadway,

Corner of Broome street, New York,

Manufacturers and dealers in

Chandeliers and Gas Fixtures.

Have a large and very choice assortment of GAS FIXTURES, which they offer at reduced prices, in view of the recent fall in gold. Their

Glass and Fire Gilt Chandeliers, are of entirely new designs,

And well worthy of attention by those who wish to purchase

☞ *Fine Fixtures for their Houses.*

OFFICE OF WM. DAVIDSON,
INSPECTOR OF GAS METERS FOR THE STATE OF NEW YORK,
☞ At the above address. 127

Petroleum Directory.

AMERICAN PETROLEUM CO.
10 Pine street. [$500,000.]
E. C. Clarke, Pres. Jas. Wadsworth, Sec.

BLOOD FARM PETROLEUM CO.
10 Pine street. [$5,000,000]
C. Butler, Pres. G H. Scribner, Sec.

COLUMBIA PETROLEUM CO.,
42 Cedar street. [2,500.000.]
B. Goe, Pres. E. Westervelt, Sec.

CHERRY CREEK FARM PET. CO.,
8 & 10 Wall street. [$2,000,000.]
L. G. Capers, Pres. J. A. Ferguson, Sec.

CENTRAL PETROLEUM CO.
10 Pine street. [$5,000,000.]
J. Bishop, Pres W W. Clark, Sec.

GERMANIA PETROLEUM CO.,
33 Pine street, [$3,000,000.]
J. F. Schepeler. Pr. C. Throckmorton, Sc

GREAT WESTERN CONSOLIDATED
27 Wall street. [$4,000,000.]
F. A. Van Dyke, Jr. Pr. F. W. Potter, Sy

GREAT NORTHERN PETROLEUM.
67 Exchange Place. [$2,000,000.]
J. Bryan, Pres. J. A. Wisner, Sec.

HOFFMAN PETROLEUM CO.
10 Pine street, [$5,000,000.]
G: W. Abbe, Pres. J. P. Hogarth, Sec.

HOME PETROLEUM CO.
10 Pine street. [$5,000,000.]
Josiah Oakes, Pres. E. Dwight, Sec

JOHN ANDERSON PET. CO.
106 Broadway, [$2,000,000.]
A. G. Curtin, Pres. E. O. Perin, Sec.

LITTLE KANAWHA & ELK RIVER,
61 Cedar street, [$6,000.000]
O. E. Wood, Pres. J. Wadsworth, Sec.

OIL CITY PETROLEUM CO.
8 Pine street, [$500,000.]
D. S. Duncomb, Pres. C. C. Pinckney, Sc

PACIFIC COAST PETROLEUM CO.
71 Broadway. [$5.000,000.]
J. De Peyster Ogden Pres. L Benton, Sc

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RYND FARM PETROLEUM CO.,
8 Broad street, [$2,000,000.]
S. J. Macy, Pres. J. F. Jenkins, Sec.

SECOND NATIONAL PET. CO.,
100 Broadway. [$3,000,000.]
M. S. Frost, Prest. J M. Bruce, Jr., Tr.

TARR FARM PETROLEUM CO,
61 Cedar street. [$3,000,000.]
J. Wadsworth, Pres. C. W. Ware, Sec

UNITED REPUBLIC PET. CO.
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10 Pine street. [$10,000,000.]
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WEST VIRGINIA OIL & COAL CO.
71 Broadway, [$3,000,000.]
A. F. Ball, Pres. F. A. Miller., Sc.

Great Improvement
IN
Sewing Machines.
EMPIRE
SHUTTLE MACHINE!

Patented February 14th, 1860.

Salesroom, 536 Broadway.

This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather to the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbers.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete - - - $60
No. 2 Small Manufacturing, with Extension Table, $75
No. 3. Large Manufacturing, with Extension Table, $85
No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably CASH on delivery.

T. J. McARTHUR & CO.,
536 Broadway.

WILCOX & GIBBS SEWING MACHINE

It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1863.
InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

JAMES WILLCOX,
Manufacturer, 508 Broadway, New York
Principal Offices:
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PARIS—82 Boulevard de Sebastopol.
ST. PETERSBURGH—15 Gorochovay.
VIENNA—9 Wildpretmarket.
BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

GAS-BURNERS.

T. G. ARNOLD,
MANUFACTURER OF
GAS-BURNERS
And Importer of SCOTCH TIPS,
224 and 226 West 21st street,
formerly No. 447 BROOME ST., New York.
Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

C. GEFRORER,
Manufacturer of
GAS-BURNERS,
For Lighting and Heating Purposes.
GAS HEATING AND COOKING APPARATUS; FITTERS' PROVING APPARATUS, &c.
No. 111 South Eighth St., Philadelphia.

WOODEN PURIFYING TRAYS
PATENT
Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy
Brooklyn, L. I.
Williamsburgh,
Citizens
Baltimore, Md.
Louisville, Ky.
Chicago, Ills.
Cambridge Mass
And numerous other

Orders received by mail or otherwise.
JOHN L CHEESMAN.
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WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
No. 40 Cortland street.

JOSEPH LENNIG,
1615, 1617, and 1619 Francis St.,
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

D. PARRISH, Jr.,
GAS ENGINEER
And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

To Manufacturers of Petroleum Gas.

For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

TO GAS COMPANIES.

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

THE AUBIN
GAS-WORKS COMPANY,
Of Albany, N. Y.,

Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded*; and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut street,
PHILADELPHIA.

Carrington & Co.'s
GENERAL
PURCHASING
AGENCY,
In Connection with all the Expresses,
No. 30 Broadway,
NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a sea ring to a steam-engine.

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Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, to recognize CARRINGTON & CO.'S GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. ALLEN
HARNDEN EXPRESS,
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NEW JERSEY EXPRESS COMPANY.
By GEORGE R. DUNN, Sup

The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines save ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

N B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

Agents wanted in counties not passed by our own agents.

Finkle & Lyon S. M. Co.
No. 588 BROADWAY, NEW YORK

AMALGAM BELLS,
AMALGAM BELLS,
AMALGAM BELLS,
AMALGAM BELLS

At prices within the reach of every Church, School, Cemetery, Factory, or Farm in the land. Their use throughout the United States and Canadas for the past six years has proven them to combine most valuable qualities. Among which are TONE, STRENGTH, SONOROUSNESS, and DURABILITY OF VIBRATION, unequalled by any other manufacture. Sizes from 15 to 5,000 lbs., costing TWO-THIRDS LESS than other metal, or 25 cents per pound, at which price I warrant them twelve months. Old bell metal taken in exchange, or bought for cash. Send for a circular to the manufacturer,

JOHN B. ROBINSON,
No. 86 DEY STREET, NEW YORK.

List of Academy, Steamboat, Fire-alarm, and Church Bells, with particulars as to Weight, Sizes, Price of Bells, Hangings, etc.

Weight of Bells.	Diameter.	Price of Bells without Hangings.	Price of Patent Hangings.	Price of Bell and Hangings complete.
225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	24	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	5 2 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	885 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

List of Prices, Weights, and Sizes of Farm, Hotel, Steamboat, School-house, Shop, and Factory Bell.

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

Weight of Bell and Hangings.	Diameter.	Cost of Bell and Hangings complete.
15 lbs.	7 inches.	$3 75
20	8¼	5 00
35	10	8 75
50	12	12 50
75	16	18 75
100	18	25 00
150	20	37 50
200	22	50 00
250	24	62 50

Larger Sizes made to Order at 25 cents per pound.

Guarantee.—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York.

In case a Bell breaks after the expiration of the Warrantee, I allow HALF PRICE for the old metal.

JOHN B. ROBINSON, 86 Dey Street, N. Y.

PRINCE'S METALLIC PAINT,

AN INDESTRUCTIBLE COATING FOR

IRON, TIN, and WOOD.

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. Prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

Terms, by the Barrel or Half Barrel, Five Cents per Pound.

A liberal discount made to parties purchasing by the ton.

A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron.

DANIEL SLOAN, General Agent,
115 LIBERTY STREET, NEW YORK.

Local Agent—CALVIN GAY, 29 Doane st., Boston.

GEO. H. KITCHEN & CO.,

NEW PATENT

GAS APPARATUS

For Country Residences, Public Buildings, &c.,

FROM $300 UPWARDS.

EVERY DESCRIPTION OF GAS FIXTURES.

Gas Fitting in all its branches

561 Broadway,
NEW YORK.

SAVING OF FUEL TO PARTIES USING STEAM DAMPER REGULATORS.

Guaranteed to effect a great saving in fuel and give the most perfect regularity of power. For sale by the subscribers, who have established their exclusive right to manufacture damper regulators, using diaphragms of flexible vessels of any kind. CLARK'S PATENT STEAM AND FIRE REGULATOR COMPANY, No. 117 Broadway, New York.

S. FULTON & CO.,

(Successors to Colwell & Co.)

Manufacturers of

PIG IRON & CAST IRON GAS & WATER PIPES.

Also, Heavy & Light Castings of every description, No. 207 North Water street and 206 North Wharves, Philadelphia.

SAMUEL FULTON. THEO. TREWENDT

POOLE & HUNT,

BALTIMORE, MD.,

are prepared to execute orders for

GAS-HOLDERS,

IRON-ROOF FRAMING,

And all other descriptions of

Iron Work for Gas-Works, Water-Pipes, and Heavy Castings, and Machinery generally.

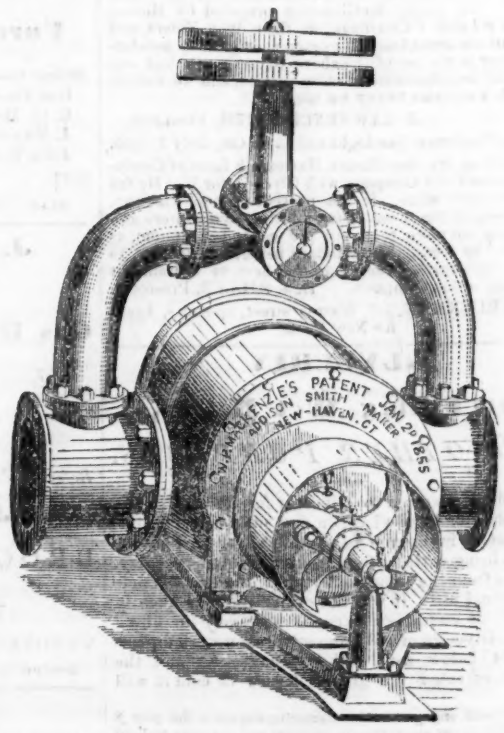
SMITH & SAYRE.

MANUFACTURING COMPANY.

THE MACKENZIE PATENT GAS EXHAUSTER

AND

PATENT COMPENSATOR.



They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

We are also sole proprietors and manufacturers of the

MACKENZIE PATENT BLOWER, PATENT CUPOLA AND SMELTING FURNACE.

The Blower is a Force Blast machine, durably built, and can be driven with one-third the po required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 tons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cen uel. Address

Office 484 Broadway, New York.

ADDISON SMITH, Prest. JAS. SAYER, Treas, CHAS. W. ISBELL, Sec'y.

MORRIS, TASKER & CO,

PASCAL IRON WORKS

[ESTABLISHED 1821,]

PHILADELPHIA,

Manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues, GALVANIZED WROUGHT IRON TUBES,

ARTESIAN WELL PIPES,

of Wrought or Cast-Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal Gas-works,; Cast-Iron Street Mains, Bends, Branches, Drips, &c.

Gas and Steam Fitters' Tools, &c.

STEPHEN MORRIS,
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CHAS. WHEELER.
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SOUTHWARK FOUNDRY,

FIFTH & WASHINGTON STREETS,

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We warrant our Glycerine free from acid and not to corrode the Meter metal, or to congeal or freeze at a stated temperature—also, not to evaporate to any extent The advantages and savings derived from the use of our fluid can be testified by many Gas Light Companies which we have supplied. We only refer to the certificates of H. J. Miller, Esq., President of Cincinnati G. L. and Coke Co., and Dr. J. Lawrence Smith, Professor of Chemistry in the Louisville College, and President of the Louisville Gas Co.

HARTMAN & LAIST,

Office No. 71 Main street, Cincinnati —Chemical Works on Providence st, and Miami Canal, near Findlay st.

CERTIFI ATE

Office Louisville Gas Co., Louisville, June 28, 1865.

This is to certify, that the Louisville Gas Co. have used for about two years, he Glycerine prepared by Messrs. Hartman & Laist f Cincinnati, in their Wet Meters, and have in all instances found it to give most perfect satisfaction. Prior to the use of the above Glycerin, we had employed that manufactured by other parties, and we consider H. & L.'s superior to any we used.

J. LAWRENCE SMITH. President.

Office Cincionati Gas Light and Coke Co., July 7, 1865.

This will certify, that Messrs. Hartman & Laist of Cincinnati, furnished this Company with Glycerin for Wet Meters some two years since It has proved very satisfactory, having resisted the action of frost during two winters and evaporating not more than six per cent. per annum, as guaranteed by them. The standard being, for density, 15 deg Beaume's scale. They were the first to introduce it practically to this Company. H. J. MILLER, President.

☞L. BRUCKMAN, 107 Warren street, up-stairs, Agent for New York.

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We have been engaged in Manufacturing Glycerin the past 8 years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country Finding the wide range that Glycerin would assume in Pharmacy, the Arts and for mechanical purposes, we have entered into the manufacture of articles adapted to the various uses and are now prepared to offer it adapted to every purpose for which it can be used at less than any article now in competition with it. We annex the following letter from S. S. Stratton, Esq., to show practically its advantages.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 15, 1864.

MESSRS W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,

S. S. STRATTON, *Sup't Cov. Gas Co.*

The following Gas Companies are using our Glycerin, to whom we refer—

Auburn, N Y—Covington Ky—Portsmouth, O—Springfield, O—Newburgh, N Y—Ann Arbor, mich—Cincinnati, O—Portsmouth, N H—Xenia, O—Richmond, Ind—Annapolis, md—Dayton, O Painsville, O—Zanesville, O - Rahway, N J—Baltimore, md—Davenport, Iowa—Manchester, N H—Urbana, O—Boston and Sandwich Glass Company—Buffalo, N Y—Philadelphia, Pa—Ripley, O—Piqua, O. —Terre Haute, Ind—Memphis, Tenn—Keokuk, Iowa—Pomeroy, O

☞For machinery, concentrated Glycerin possesses superior advantages, not becoming solid at the freezing point of mercury and not affected as oils are by exposure to the atmosphere.

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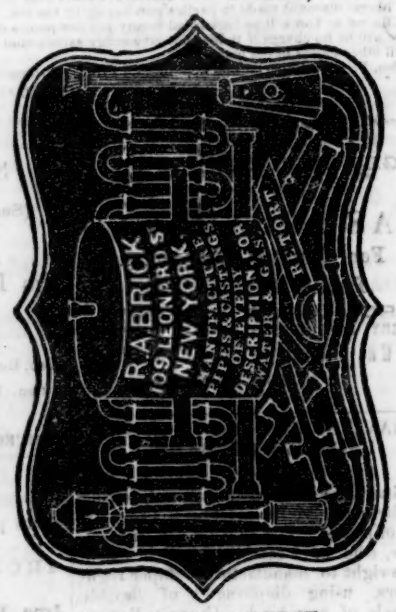

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